

AUBURN UNIVERSITY

Fully accredited by the
Southern Association of Colleges
and Schools



ALABAMA'S
LAND-GRANT
UNIVERSITY

AUBURN, ALABAMA 36830

1967-68

CATALOG NUMBER

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APRIL, 1967

NUMBER 4

1967

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UNIVERSITY CALENDAR

1967—Summer Quarter

- May 22, *Monday*—Last day for completing applications
- June 12-13, *Monday and Tuesday*—Registration
- June 14, *Wednesday*, 7:00 a.m.—Classwork begins
- June 14-16, *Wednesday through Saturday*—Special examinations
- June 15, *Thursday*—Last day for first term registration
- June 15-16, *Thursday and Friday*—Change-in-registration period
- June 16, *Friday*—Last day for registration or adding courses
- June 17, *Saturday*, 7:00 a.m.-10:00 p.m.—Classes (Tuesday schedule)
- July 4, *Tuesday*, Independence Day—Holiday
- July 14, *Friday*—Reporting of mid-quarter deficiencies
- July 15, *Saturday*—Final examinations first term
- July 17, *Monday*—Registration for second term
- July 19-August 2—Registration of currently enrolled and former students for Fall Quarter
- August 19, *Saturday*—Final examinations for second term
- August 19-22, *Saturday through Tuesday*—Final examinations for quarter
- August 23, *Wednesday*—Graduation exercises 4:00 p.m.

1967—Fall Quarter

- August 30, *Wednesday*—Last day for completing applications
- September 20, *Wednesday*, 4:00 p.m.—Freshmen report
- September 20-22, *Wednesday through Friday*—Final registration
- September 25, *Monday*, 7:00 a.m.—Classwork begins
- September 25-28, *Monday through Thursday*—Special examinations
- September 26-27, *Tuesday and Wednesday*—Schedule Adjustment period
- October 24, *Tuesday*—General Faculty meeting
- November 1, *Wednesday*—Reporting of mid-quarter deficiencies
- *October 30, *Monday*, through November 14, *Tuesday*—Registration of currently enrolled and former students for Winter Quarter
- November 22-26, *Wednesday noon through Sunday*—Thanksgiving Holidays
- December 7, *Thursday*—Classwork ends
- December 11-14, *Monday through Thursday*—Final examinations
- December 15, *Friday*—Graduation exercises, 2:30 p.m.

1968—Winter Quarter

- December 12, *Tuesday*—Last day for completing applications
- January 2-3, *Tuesday and Wednesday*—Final registration
- January 4, *Thursday*, 7:00 a.m.—Classwork begins
- January 4-9, *Thursday through Tuesday*—Special examinations

UNIVERSITY CALENDAR

1968

January 5-8, *Friday* and *Monday*—Schedule Adjustment period

*February 5, *Monday*, through 20, *Tuesday*—Registration of currently enrolled and former students for Spring Quarter

February 7, *Wednesday*—Reporting of mid-quarter deficiencies

March 8, *Friday*—Classwork ends

March 9-13, *Saturday* through *Wednesday*—Final examinations

March 14, *Thursday*—Graduation exercises, 2:30 p.m.

1968—Spring Quarter

February 29, *Thursday*—Last day for completing applications

March 21-22, *Thursday* and *Friday*—Final registration

March 25, *Monday*, 7:00 a.m.—Classwork begins

March 21-26, *Thursday* through *Tuesday*—Special examinations

March 26-27, *Tuesday* and *Wednesday*—Schedule Adjustment period

*April 29, *Monday*, through May 14, *Tuesday*—Registration of currently enrolled and former students for Summer or Fall Quarter

April 23, *Tuesday*—General Faculty Meeting

April 25, *Thursday*—Reporting of mid-quarter deficiencies

May 2, *Thursday*—Honors Day

May 28, *Tuesday*—Classwork ends

May 29-June 1, *Wednesday* through *Saturday*—Final examinations

June 3, *Monday*—Graduation exercises, 4:00 p.m.

1968—Summer Quarter

May 20, *Monday*—Last day for completing applications

June 10-11, *Monday* and *Tuesday*—Final registration

June 12, *Wednesday*, 7:00 a.m.—Classwork begins

June 12-15, *Wednesday* through *Saturday*—Special examinations

June 13-14, *Thursday* and *Friday*—Schedule Adjustment period

July 4, *Thursday*—Independence Day, Holiday

July 13, *Saturday*—Final examination for first term

July 15, *Monday*—Registration for second term

July 16, *Tuesday*—Reporting of mid-quarter deficiencies

*July 17, *Wednesday*, through 31, *Wednesday*—Registration of currently enrolled and former students for Fall Quarter

August 16, *Friday*—Classwork ends

August 17, *Saturday*—Final examinations for second term

August 17-20, *Saturday* through *Tuesday*—Final examinations for Quarter

August 21, *Wednesday*—Graduation exercises, 4:00 p.m.

JANUARY

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* Dates subject to change pending revision of registration procedures. Each academic school will designate registration dates within these periods.

The Auburn Board of Trustees

Under the organic and statutory laws of Alabama, Auburn University is governed by a Board of Trustees consisting of one member from each congressional district, as these districts were constituted on January 1, 1961, an extra member from the congressional district in which the institution is located, and the Governor and State Superintendent of Education, who are ex-officio members. The Governor is chairman. Members of the Board of Trustees are appointed by the Governor by and with the advice and consent of the State Senate and hold office for terms of twelve years. Members of the board receive no compensation.

The Board of Trustees places administrative authority and responsibility in the hands of an administrative officer at Auburn University. The institution is grouped for administrative purposes into divisions, schools, and departments.

Members of the Board

Her Excellency, LURLEEN B. WALLACE, Governor, President (Ex-officio) _____ Montgomery
ERNEST STONE, State Superintendent of Education (Ex-officio) _____ Montgomery

Term Expires 1967

Name	District	Home
E. L. WYNN	Fourth	Ashland
M. H. MOSES	Fifth	Fyffe
PAUL S. HALEY, Vice-President	Seventh	Jasper

Term Expires 1971

R. C. BAMBERG	Sixth	Uniontown
REDUS COLLIER	Eighth	Decatour
JOHN W. OVERTON	Second	Montgomery

Term Expires 1975

JOHN PACE, III	First	Mobile
SIM A. THOMAS	Third	Eufaula
ROBERTS H. BROWN	Third	Opelika
FRANK P. SAMFORD	Ninth	Birmingham

FIRST DISTRICT COUNTIES: Choctaw, Clarke, Marengo, Mobile, Monroe, Washington and Wilcox.

SECOND DISTRICT COUNTIES: Baldwin, Butler, Conecuh, Covington, Crenshaw, Escambia, Lowndes, Montgomery and Pike.

THIRD DISTRICT COUNTIES: Barbour, Bullock, Coffee, Dale, Geneva, Henry, Houston, Lee, Macon and Russell.

FOURTH DISTRICT COUNTIES: Autauga, Calhoun, Clay, Coosa, Dallas, Elmore, St. Clair and Talladega.

FIFTH DISTRICT COUNTIES: Chambers, Cherokee, Cleburne, DeKalb, Etowah, Marshall, Randolph and Tallapoosa.

SIXTH DISTRICT COUNTIES: Bibb, Chilton, Greene, Hale, Perry, Shelby, Sumter and Tuscaloosa.

SEVENTH DISTRICT COUNTIES: Blount, Cullman, Fayette, Franklin, Lamar, Marion, Pickens, Walker and Winston.

EIGHTH DISTRICT COUNTIES: Colbert, Jackson, Lauderdale, Lawrence, Limestone, Madison and Morgan.

NINTH DISTRICT COUNTY: Jefferson.

The University Administration

PHILPOTT, HARRY M., *President*

BAILEY, WILFORD S., *Vice President for Academic Affairs*

LANHAM, BEN T., JR., *Vice President for Research*

ROBERTSON, FRED R., *Vice President for Extension*

VALLERY, H. FLOYD, *Assistant to the President*

CANTRELL, CLYDE H., *Director of Libraries*

CATER, KATHARINE C., *Dean of Women*

FUNCHESS, L. E., *Director of Buildings and Grounds*

FOY, JAMES E., *Dean, Student Affairs*

HAWKINS, HERBERT, *Director of Admissions*

INGRAM, WILLIAM T., *Business Manager*

KILLIAN, ALBERT F., *Registrar*

MARSHALL, ROBERT B., *Professor of Military Science*

RICHARD, A. H., JR., *Professor of Air Science*

SARVER, JOSEPH B., *Director of Development*

SMITH, EDWIN V., *Director of Agricultural Experiment Station System*

SWEENEY, J. B., JR., *Professor of Naval Science*

TINCHER, WILBUR A., JR., *Director of Educational Services*

HUNTLEY, MICHEL C., *Dean of Faculties*

COKER, SAM T., *Dean, School of Pharmacy*

GREENE, JAMES E., *Dean, School of Veterinary Medicine*

*HOBBS, EDWARD H., III, *Dean, School of Science and Literature*

PARKER, W. V., *Dean, Graduate School*

PIERCE, TRUMAN M., *Dean, School of Education*

PUMPHREY, FRED H., *Dean, School of Engineering*

SAUNDERS, C. R., *Dean, School of Chemistry*

SMITH, EDWIN V., *Dean, School of Agriculture*

SPEER, WILLIAM A., *Dean, School of Architecture and The Arts*

VAN DE MARK, MILDRED, *Acting Dean, School of Home Economics*

* Dr. Roger Allen retires as Dean of School of Science and Literature on July 1, 1967.

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Auburn University—Past and Present

Historical Sketch

Auburn University was chartered February 1, 1856, as the Methodist-sponsored East Alabama Male College, and the formal opening took place October 1, 1859. The Civil War interrupted the college's growth in 1861. Except for the preparatory department, the college suspended operation, reopening in 1866.

Beset with financial problems, the college was accepted by the State of Alabama, February 26, 1872, as a gift of the Methodist Episcopal Church, South. Having accepted the Morrill or Land-Grant College Act of 1862 in 1868, the Alabama Legislature located the Alabama Agricultural and Mechanical College at Auburn, the first land-grant college in the South established separate from the state university.

Auburn first admitted women students in 1892.

Following an earlier action of the Board of Trustees, the Legislature, in 1899, changed the name of the institution to The Alabama Polytechnic Institute, justifying the change on the college's broadened program of teaching the sciences and arts as well as branches related to agriculture and the mechanic arts.

Auburn University has experienced its greatest growth and development since World War II with over three-fourths of the some 12,600 students enrolled currently in the Schools of Engineering, Education, Science and Literature, and the Graduate School.

From the beginning, the name of the city—drawn from Goldsmith's immortal line, "Auburn, loveliest village of the plain"—has been used to designate the institution. Recognizing this fact and the expanded academic program, the Alabama Legislature changed the name of the institution to Auburn University on January 1, 1960.

One of the largest institutions in the South today, Auburn University has increased its enrollment from 80 in 1859 to 12,643 in the fall of 1966. The original plant consisted of a single building and 16 acres. Expansion has resulted in a multi-million dollar plant comprising 56 main buildings and 1,871 acres on the main campus. The University's Agricultural Experiment Station owns an additional 16,814 acres of land at substations and units over the state. Through its divisions of Instruction, Research and Extension, Auburn University touches the life of nearly every Alabama family.

The City of Auburn, incorporated in 1838 in Lee County, Alabama, is 60 miles east of Montgomery, 120 miles southeast of Birmingham, and 125 miles southwest of Atlanta, Ga. It sits astride the junction of the Piedmont plateau and the Coastal plains at an elevation of 732 feet and enjoys moderate temperatures throughout the year. The city has an area of about 20 square miles and a population of approximately 20,000.

Auburn's Three Functions Today

The official seal of Auburn University carries three words, Instruction, Research, and Extension, indicating the three functional areas through which the institution operates as the State's Land-Grant University.

Through INSTRUCTION, the University by the presentation of knowledge and its challenges attempts to develop the mind of the student and thus prepare him for a useful and satisfying life.

Through RESEARCH, basic and applied, it seeks to enlarge and verify the major bodies of knowledge and to find solutions to problems confronting business, industrial, agricultural, governmental and professional groups.

Through EXTENSION, it conveys to the people of the State the findings of research and its application to the improvement of working and living.

INSTRUCTION

There are 9 undergraduate academic schools and a School of Graduate Studies incorporated in Auburn University, including 63 departments for specialized study. Baccalaureate, masters and doctoral degrees are offered and awarded on a basis of high standards. A strong graduate program strengthens undergraduate areas and all research programs. Military instruction is offered through programs in Military, Naval and Air Science.

The University's instructional purpose is twofold: to stimulate the student to reach his full potential as a human being through a respect for intellectual inquiry and an understanding of the cultural tradition of which he is a part; and to provide him with the knowledge and skills that will allow him to make his way successfully in a demanding and practical world.

RESEARCH

Chiefly because of lack of subject matter for instruction, the land-grant college upon its inception accepted responsibility for discovering and organizing knowledge in agriculture and related fields. The purposes of research suggested in the Hatch Act of 1887 provided for establishment and support of agricultural experiment stations. Its objectives were to conduct research bearing on the agricultural industry, to aid in acquiring information on subjects connected with agriculture, and to promote scientific investigation into the principles and applications of agriculture.

In 1929 an Engineering Experiment Station was established to assist industries in the State to improve manufacturing processes and to study undeveloped natural resources and methods by which they may be converted into marketable products. Its services are available to industry, governmental agencies, and to citizens of the State.

In 1944 the Auburn Research Foundation was incorporated and a Research Council was formed to further research, to discover and develop research talent, to cooperate with all agencies for the betterment of the South, to foster and encourage learning in natural science, social science, the humanities, agriculture and engineering, and to promote liberal and practical education in the several pursuits of life.

Furthering the frontiers of knowledge in all areas and discovering new and better ways of doing things through broadened programs of research are continuing objectives of the University as it seeks to discharge its responsibility to the people of Alabama.

At Auburn research and extension are functions coordinated with instruction. Individual research by members of the faculty and graduate students is encouraged and extensive programs of basic and applied research are continually conducted throughout the institution.

EXTENSION

Extending the results of research and instruction and countless other services directly to the people of the State in the cities and on the farms; in organized classes and in the home; by lecture, demonstration, publications and otherwise, has long been a major responsibility of the institution. The land-grant college has gone into the far corners of the State to serve people and to give them the benefit of knowledge acquired through instruction, in the laboratories, and on the farms.

Since the passage of the Smith-Lever Act in 1914, employees of the Co-operative Extension Service have carried specific and useful agricultural and home economics information to people on the farms and in communities throughout the state. Results have been higher crop and livestock production, improved soils, diversification, better marketing facilities, more machinery, and better homes.

The Engineering Extension Service was established in 1937 to provide greater opportunities for the people, businesses, and industries of the State to use the resources and facilities of the University. Programs of this Service include technical short courses, conferences, and the co-operative education program.

Auburn University is keenly aware of its responsibilities in all areas of Extension and continuing education. Extension programs are conducted by the Schools of Architecture and the Arts, Education, Engineering, Pharmacy, the Department of Business Administration in the School of Science and Literature, and by the School of Veterinary Medicine. In addition, Educational Television presents instructional and informational programs, and the Ralph Brown Draughon Library works cooperatively with city, county and regional libraries to make literary materials accessible to the people.

Extension programs are designed to enable the University to provide a wide variety of educational services throughout Alabama to farms, homes, industries, communities and municipalities. A major goal of Auburn is to relate more adequately the competencies of the University to the needs of people and communities throughout the State.

The Campus and Buildings

Located on the Auburn campus are 56 major classroom, research, and service buildings. There are 20 women's dormitories; three major men's dormitories, an athletic dormitory and 336 apartments for married students in the Caroline Draughon Village. The main campus consists of 1,871 acres, of which 420 are intensively maintained.

In addition, the Agricultural Experiment Station owns 16,814 acres of land at the 10 substations, five experiment fields, four forestry units, the plant breeding unit, the ornamental field station, and the main station at Auburn.

Considerable construction has been accomplished during the past five years, including a \$2.5 million Library, a Physical Science Center and a Home Economics building. The old library building, now Mary E. Martin Hall, has been renovated, air-conditioned and converted into an administrative building.

Through the Auburn University Development Program, a new organization enabling Auburn alumni and friends to support the University, funds for the

1. Allison Physics Lab
2. Agricultural Engineering
3. Agricultural Engineering Garage
4. Agricultural Greenhouses
5. Air Force Supply
6. Alumni Gymnasium
7. Alumni Hall
8. Animal Sciences Building
9. Athletic Field House
10. Auburn Union
11. Memorial Coliseum site
12. Biggin Hall
13. Brown Hall
14. Buildings and Grounds
15. Bullard Hall

16. Burke Laboratory
17. Cary Hall
18. Chemistry Building
19. Child Study Laboratories
20. Cliff Hare Stadium
21. Comer Hall
22. Commons
23. Dairy Barns
24. Dorn 1, Harper Hall
25. Dorn 2, Kate Brown Hall
26. Dorn 3, Little Hall
27. Dorn 4, Teague Hall
28. Dorn 5, Dowdell Hall
29. Dorn 6, Glenn Hall
30. Dorn 7, Lane Hall

31. Dorm 8, Lupton Hall
32. Dorm 9, Keller Hall
33. Dorm 10, Owen Hall
34. Dorm 11, Mell Hall
35. Dorm 12, Gatchell Hall
36. Dorm A, Hollifield Hall
37. Dorm B, Annie Duncan Hall
38. Dorm C, Toomer Hall
39. Dorm D, Dobbs Hall
40. Dorm E, Berta Dunn Hall
41. Dorm F, Dixie Graves Hall
42. Dorm G
43. Dorm H
44. Dorm I
45. Dorm J

construction of a Nuclear Science Center were made available. A \$1,017,000 Nuclear Science Center is now in use.

Direction of the Auburn University Development Program is under a 55-member board known as the Auburn University Development Council. All gifts obtained through the Development Program are received by the Auburn University Foundation, a corporation created expressly for that purpose and administered by a seven-man board of directors.

A map of the campus listing the buildings and their function is shown on pages 10 and 11.

Experiment Station Properties

The Agricultural Experiment Station System of Auburn University owns 16,814 acres of land at the ten substations, five experiment fields, four forestry units, plant breeding unit, ornamental horticulture field station, foundation seed stocks farm, and the main station at Auburn. Locations and acreages of the above mentioned units are as follows:

Main Station	Auburn	Lee	4,453
Substations:			
Black Belt	Marion Junction	Dallas	1,116
Chilton Area Horticulture	Clanton	Chilton	161
Gulf Coast	Fairhope	Baldwin	800
Lower Coastal Plains	Camden	Wilcox	2,755
North Alabama Horticulture	Cullman	Cullman	160
Piedmont	Camp Hill	Tallapoosa	1,409
Sand Mountain	Crossville	DeKalb	536
Tennessee Valley	Belle Mina	Limestone	760
Upper Coastal Plains	Winfield	Marion and Fayette	735
Wiregrass	Headland	Henry	532
Experiment Fields:			
Alexandria	Alexandria	Calhoun	90
Brewton	Brewton	Escambia	80
Monroeville	Monroeville	Monroe	79
Prattville	Prattville	Autauga	80
Tuskegee	Tuskegee	Macon	237
Plant Breeding Unit	Tallassee	Elmore	664
Ornamental Horticulture			
Field Station	Spring Hill	Mobile	15
Foundation Seed Stocks Farm	Thorsby	Chilton	180

In addition to the above, there are 1,972 acres at the Forestry Units in Autauga, Barbour, Coosa, and Fayette Counties.

Sources of Revenue

Auburn University derives its support from the State and Federal Governments and from other sources. Funds are as follows:

1. Direct annual appropriations made by the State for support, maintenance, and development of public education, including campus instruction, agricultural research, agricultural extension, engineering research, and educational television.
2. Special appropriation made by the State for buildings, purchase of lands, and improvements.
3. Funds derived from the original endowment of the institution under the Federal Land-Grant Act and earnings from other subsequently acquired endowment funds.
4. Income derived from the payment by students of fees and other charges. All tuition at Auburn University is free, except to non-residents of Alabama, but certain fees are assessed to cover specific services.
5. The Morrill fund appropriated by the United States Government for the instruction of students in the sciences relating to agriculture and the mechanic arts and in the English language, literature, and for the training of teachers in agriculture and the mechanic arts.
6. Funds received from the State of Alabama through the Smith-Hughes Act derived from the congressional appropriation and paid to Auburn University for its work in the training of teachers of agriculture and home economics.
7. Such revolving funds as may be incident to the operation of any department where it is advisable to sell or dispose of products produced in the course of conducting the Experiment Station or any department of the institution.
8. Gifts, grants, and donations received from alumni, private individuals, and organizations both for general and restricted educational purposes, including scholarships.
9. Direct annual appropriations made by the United States Government for research purposes and devoted to investigation of scientific agricultural problems of the farmers of the State. These funds are also for research purposes in connection with investigation of new experiments bearing directly on the production, manufacture, preparation, use, distribution, and marketing of agricultural products, and research work regarding Home Economics, and for the purpose of publishing these results.
10. Direct appropriations made by the United States Government for the Agricultural Extension Service in support of County Agricultural and County Home Demonstration Agents, for the support of boys' and girls' 4-H club work, and for other types of extension work in agriculture and home economics in the several counties of Alabama.
11. Each county in the State makes certain appropriations to supplement those from the United States Government and the State of Alabama for the support of the Agricultural Extension Service.
12. Funds received from industry, governmental agencies, and private individuals for special contractual research projects which are handled through the Auburn Research Foundation, Inc., and the Agricultural Experiment Station.
13. Funds received under federal programs such as Higher Education Act of 1965 and the Water Resources Research Act of 1964.

Information For New Students

Admissions

Application for admission to any undergraduate school or curriculum of the University must be made to the Admissions Office, Auburn University, Auburn, Alabama, 36830. The necessary application forms and instructions may be obtained from the Admissions Office.

Because of the large number of applications, credentials should be filed at the earliest possible date. In every case, complete admission credentials, including the physical examination report, must be filed at least three weeks prior to the opening of the quarter in which admission is desired. The University reserves the right, however, to establish earlier deadlines should the number of applicants exceed the number of students who can be adequately housed or instructed.

A ten dollar (\$10.00) application processing fee must accompany all applications for admission. This fee is required for all undergraduate applications and is not refundable or applicable to registration or tuition fees. In submitting admission credentials, applicants must give complete and accurate information. False or misleading statements can result in denial of admission or cancellation of registration.

Each applicant must complete and return, at least three weeks prior to the opening date of the quarter in which admission is desired, a *medical examination report* on a form which will be furnished by the University. The University reserves the right to require any student to submit to such additional medical examinations as are believed advisable for the protection of the University community, and to refuse admission to any applicant whose health record indicates a condition which college work would affect adversely or which would be harmful to the students of the University. Any applicant who fails to comply with this requirement will not be admitted to the University.

Each applicant must furnish satisfactory evidence of good moral character.

Applicants may be admitted to most undergraduate curricula in any quarter; however, to Veterinary Medicine, they may be admitted in the Fall Quarter only. For special requirements for admission to Architecture, see page 73; Engineering, page 113; Pharmacy, page 144; Veterinary Medicine, page 158.

Admission To Freshman Class

High school students planning to apply for admission to Auburn University should emphasize in their programs the following subjects: English, mathematics, social studies, sciences and foreign languages. A minimum of 16 high school units is required for admission. Four of these units may be vocational subjects.

Consideration for admission will be given to graduates of accredited secondary schools whose college ability test scores and high school grades indicate they can be successful in fields of study to which they seek admission.

Alabama residents are required to complete the American College Test (ACT) on one of the announced state-wide testing dates. High school students may secure application forms and information regarding the tests from their principals or counselors. Either the ACT or the Scholastic Aptitude Test (SAT) of the College Entrance Examination Board will be accepted for applicants from states other than Alabama. Scores attained on these tests are used as a partial basis for admission, for placement in English, chemistry, and mathematics, and for awarding university-administered scholarships and loans.

One unit of college preparatory mathematics is required for admission to any curriculum. This must be a course in basic or fundamental mathematics specifically designed to include the study of the deductive nature of mathematics, and cannot be replaced by such courses as business mathematics, personal finance, general mathematics, etc.

A second unit of college preparatory mathematics is required for all curricula which include MH 121, College Mathematics. One of these two units must be principally the study of geometry, including the geometry of three dimensions. A third unit is required for those curricula containing MH 160, Algebra and Trigonometry, as a first course in mathematics. Students planning to study architecture, chemistry, engineering, mathematics, or physics should take a fourth unit including a thorough study of the basic analytic properties of the elementary functions.

Students completing four units of college preparatory mathematics who score sufficiently high on the ACT or the SAT tests will be permitted to register for MH 122 or MH 161.

Applicants of mature age who have not graduated from high school may be admitted to full freshman standing if scores made on the USAFI General Educational Development Test, the American College Test and/or such special achievement tests or subject examinations as may be recommended by the Committee on Admissions, indicate educational attainment equivalent to graduation from high school. Applicants from non-accredited high schools may be accepted if they make satisfactory scores on tests prescribed by the Committee on Admissions.

Early Admissions

Students of high academic promise may be admitted directly from the eleventh year of school without the secondary school diploma. Basic requirements for early admission are:

1. Proper personal qualifications.
2. Superior competence and preparation as evidenced by the high school record, and by satisfactory scores on pre-admission aptitude tests, College Entrance Examination Board achievement tests in English, mathematics, and history or a science, pre-registration placement tests, or proficiency tests administered by appropriate departments at Auburn University.
3. A letter from the principal recommending the applicant as to emotional and social maturity and readiness for college work, and indicating approval of his early admission.

Admission of Transfer Students to Undergraduate Curricula

An applicant who was not eligible for admission to the University upon graduation from high school must present a minimum of 96 quarter hours or 64 semester hours of acceptable college work to be considered for admission as a transfer student.

Undergraduate applicants transferring from accredited colleges must have satisfactory citizenship records, an overall average of "C" or better on all college work attempted* and be eligible to re-enter the last institution attended. Entrance examinations may be required of applicants transferring from colleges with which the University has had little or no experience.

Graduation from a junior college does not of itself assure an applicant of admission to Auburn. Such applicants must also present an overall average of "C" or better on all work attempted. The maximum credit allowed for work done in a junior college will not exceed the number of hours required in the first two years of the student's curriculum at Auburn.

Each applicant must submit two official transcripts of his record from each institution attended. Unless high school credits are shown on the transcript, one transcript of the high school record must be filed.

The amount of advanced standing credit allowed will be determined by the Dean and Registrar. Acceptance of "D" grades is determined by the Dean concerned, except that credit is allowed in Freshman English only on grades of "C" or better.

Students transferring from institutions not fully accredited by the appropriate regional agency will be granted provisional credit. Final credit will be assigned after the student has completed one full year of work (credit hours and residence quarters) at Auburn University. If a "C" average is not achieved, the amount of credit will be reduced in proportion to the number of hours in which a "C" average was not made.

Pre-College Counseling Program

As a means of helping entering freshmen and transfer students to make wiser decisions in choosing their field of study and to adjust more readily to their first quarter of college life, Auburn University has instituted the Pre-College Counseling Program.

Summer program for Fall quarter freshmen—The summer program for freshmen entering the fall quarter consists of a series of two day sessions on campus. During these programs students take appropriate tests, talk with trained counselors and hear faculty members discuss the requirements and opportunities in their areas of specialization. In addition, entering freshmen are given the opportunity to plan a schedule for their first quarter of college work, assuring them of courses they will need when they return to begin their college career.

Program for freshmen entering winter, spring, or summer quarters—Students entering Auburn University as first quarter freshmen for any quarter,

* When computing the overall grade average, Auburn University uses all grades earned including those earned in courses which were later repeated.

other than the fall quarter, are required to report to campus one day earlier for counseling activities. All freshmen will be notified of the dates to report to campus.

Program for transfer students — Students who have completed one quarter or semester at another institution of higher learning are required to report to campus one day earlier than other students, if they are entering the winter, spring, or summer quarters. Beginning with the fall quarter 1967, transfer students are expected to attend a one-day program in the latter part of the summer. At this time they will meet with faculty advisers and representatives of the academic deans. Their transcripts will be evaluated in order that courses may be selected for the fall quarter.

Admission Of Special Students

Persons at least 20 years of age who cannot fulfill the regular admission requirements for freshman standing but otherwise have acquired adequate preparation for university courses may be admitted as special students on approval of the dean concerned. To become a candidate for a degree, a special student must meet entrance requirements.

Admission Of Transient Students

A student in good standing in an accredited college or university may be admitted to Auburn University as a transient student when available faculty and facilities permit.

To be eligible for consideration for admission, a transient student applicant must submit a satisfactory medical report and the Transient Student Form (in duplicate) properly completed and signed by the Dean or Registrar of the college or university in which he is currently enrolled.

Permission to enroll in courses on a transient basis is granted for **one quarter only**, and a student who wishes to seek re-entry in the transient classification must submit another Transient Student Form. It must be understood that transient student permission does not constitute admission or formal matriculation as a regularly enrolled student (degree candidate); however, a transient student is subject to the same fees and regulations as a regular student, except that ROTC, physical education, and academic continuation in residence requirements shall not apply.

It is the responsibility of the transient student to check with the academic department offering the courses in which the student wishes to enroll to determine if he has met course prerequisites and if he has the necessary preparation to take the courses desired.

If at any time a transient student desires to enroll as a regular student, he must make formal application for admission to the University as a transfer student and submit two complete transcripts from each college or university attended.

Advanced Standing Program

Under the Advanced Standing Program, able students of superior preparation are afforded the opportunity of being placed in programs suited to their

abilities and preparation for college study. Some exceptionally able students may be admitted prior to high school graduation. (See above under "Early Admission.") High school graduates of superior achievement may be able to qualify for advanced placement and for credit which may count toward degree requirements.

Advanced Placement — Entering freshmen who demonstrate superior preparation are accorded the opportunity of qualifying for advanced placement and/or credit, not to exceed a total of 45 quarter hours, in the following areas: Biology, Botany, Chemistry, English, Foreign Language, History, Mathematics, Physics, and Zoology.

Advanced placement or credit may be granted to entering freshmen who during their senior year in high school have made satisfactory scores on the College Board Advanced Placement Examinations.

A student with special competence in a specific area, as evidenced by high school grades and scores on college ability or achievement tests, may apply for a departmental examination which may qualify him for advanced placement or credit in that department.

The amount of credit allowable through advanced placement is determined by the dean and the department head concerned. A brochure describing the Advanced Standing Program will be forwarded by the Registrar upon request.

Proficiency Examinations — Proficiency Examinations similar to final examinations may be administered by a department upon application of the individual student. A student who has pursued college-level work in secondary school, in class or on a tutorial basis, or through private study, may make application for a proficiency examination. If he earns a satisfactory grade, he will be eligible for placement in an advanced course and for credit in the subject covered by the examination.

Admission To Graduate Standing

Admission to graduate standing is granted only by the Graduate School of the University. Graduation with a Bachelor's degree or its equivalent from an accredited college or university plus submission of satisfactory scores on the Aptitude Test of the Graduate Record Examinations are requisite for admission to the Graduate School. The undergraduate preparation of each applicant for admission must also satisfy the requirements of a screening committee of the school or department in which he desires to major. Any student in good standing in any recognized graduate school who wishes to enroll in the summer session, in an off-campus workshop or in a short session and who plans to return to his former college may be admitted as a "graduate transient." For further information see section on The Graduate School and contact the Graduate School for a special catalog.

Non-Resident Students

Preference is given to the admission of residents of Alabama; however, applications from out-of-state residents will be accepted. The number of out-of-state students who are accepted will be determined by the availability of facilities and faculty.

In assessing fees, students are classified as resident and non-resident students. Non-resident students (except Graduate students and sons and daughters of ministers) are required to pay a tuition fee. The term "resident" as used in this policy is interpreted to mean the state in which the parents are domiciled. Guardian is interpreted to mean a bona-fide guardian appointed in a judicial decision by a court of law.

A resident, if under 21 years of age, is one whose parents or guardian have been residents of Alabama for at least 12 consecutive months preceding the original enrollment or whose parents were residents of Alabama at the time of their deaths and who has not acquired residence in another state. In all cases of guardianship, the period of guardianship must have been not less than 12 months at the time of original enrollment. If the parents are divorced, residence will be determined by the residency of the parent to whom the court has granted custody.

A resident student, if over 21 years of age, is one whose parents are or were at the time of their deaths residents of Alabama and who has not acquired residency in another state; or who, as an adult, has been a resident of Alabama for at least 12 consecutive months preceding the original enrollment; or who is the wife of a man who has been a resident of Alabama for at least 12 consecutive months preceding the original enrollment.

Alabama laws provide that residency may not be acquired by attendance at an institution of higher learning. Students whose residency follows that of parents or guardian shall be considered to have gained or lost residency in Alabama while in college according to changes of residence of parents or guardian. For fee purposes, residence shall not be considered to have been gained until 12 months after such persons have become residents of Alabama. A dependent of a member of the Armed Forces stationed in Alabama on active duty by official orders shall not be liable for payment of non-resident tuition during the period of military assignment in Alabama.

Any question concerning residency should be directed to the Registrar. The burden of proof of residency is upon the student. A non-resident student who registers improperly under the above regulations will be required to pay not only the non-resident fee, but also a penalty fee of \$10.00.

Living Accommodations

The operational plan for University dormitories is predicated on the belief that a university education is not limited to classroom activities. A true university education includes the total experience of living within an educational environment. A schedule of activities, student government, and a diversified program which the residents help plan and in which they participate are important parts of university education.

In all University dormitories and apartments, careful precautionary measures are taken to assure the security of the residents and their personal property. However, the University does not insure personal property of the residents and is not responsible for damage to or loss of personal property of occupants of University-owned facilities.

The University reserves the right to inspect periodically the rooms of students living in University housing.

Men Students

Auburn University provides dormitory accommodations for approximately 1,257 men students. The men's dormitories are in two areas, Magnolia Dormitories and Roy Sewell Dormitory.

Magnolia Dormitories, housing 1,113 men students, is a three-building unit in the northwestern part of the campus. All units are of brick, hollow tile, and steel construction and together form one of the best-equipped resident areas for college men in the South. Magnolia Hall, Bullard Hall, and Noble Hall are connected to form a harmonious architectural and living pattern. All buildings are arranged into divisions of approximately 40 students. These divisions, wherein residents share the experiences of living and working together, form the nucleus of the dormitory program. There is a dormitory counselor for each division. The dormitory counselors are assisted by graduate counselors, under the direction of the resident counselor and the dormitory manager, in carrying out the dormitory program.

In the Magnolia Dormitories two students share a room. Each student has his own single bed, closet, and study table. The dormitories contain a dining hall, well-appointed lounge and recreational areas, a post-office, a snack shop, and other facilities to make a complete living unit. The housemothers, the resident counselors, and the graduate counselors have their apartments in the buildings.

Roy Sewell Dormitory, which houses 144 men students, is equipped with dining facilities and is supervised by a resident staff member. There are two boys in each of the 72 rooms, with separate study hall and lounge.

Room Reservations—In order to provide housing for its students at the lowest rate possible, Auburn University must operate Magnolia Dormitories on the basis of a contract for the academic year and/or the Summer Quarter. The academic year consists of the Fall, Winter, and Spring quarters; or, that portion of this period following the quarter for which a student is accepted by Magnolia Dormitories. The Summer Quarter is regarded as a separate contract period.

It is not necessary for men applying for undergraduate University admission to make separate requests for University housing. Applications For Residence and Housing Agreements are mailed with tentative acceptance forms by the University Admissions Office. If housing applications for that school quarter are in excess of capacity, notice will be given promptly. Inquiries from former Auburn University students and graduate students should be addressed to Magnolia Dormitories. The completed Application, with a \$25.00 check payable to Auburn University for room reservation deposit, should be returned to the Manager, Magnolia Dormitories, as soon as possible. Room deposits are held to cover possible loss and/or damage to dormitory property and are not applicable to payments of room rents. The completed Housing Agreement, with prepaid rent for at least one quarter, must reach the Dormitories office not later than the applicable deadline.

Room reservations will be valid only through 5:00 p.m. of the sixth day after the dormitories open, unless other acceptable arrangements have previously been made with the Manager of Magnolia Dormitories.

Refunds of room deposit and prepaid rent will be made under the following conditions:

1. When reservations for the Fall Quarter are cancelled on or before July 1, prior to the beginning of the Fall Quarter.
2. When Winter Quarter reservations, which would be the FIRST quarter of residence, are cancelled on or before December 1.
3. When Spring Quarter reservations, which would be the FIRST quarter of residence, are cancelled on or before March 1.
4. When reservations for the Summer Quarter are cancelled on or before May 15.
5. When room is vacated at the end of a contract period and no future reservations are desired.
6. When a student is prevented from returning because of scholastic deficiencies.
7. When a resident is drafted into military service during a contract period.
8. When personal illness, or physical injury, necessitates withdrawal during a contract period.
9. When a student graduates from the University, or terminates his Housing Agreement in order to participate in one of the University's short term programs (Co-op, Vet. intern, practice teaching).
10. When a student withdraws from the University at the end of a school quarter.

Conditions governing refunds of room deposits and prepaid rent in certain other circumstances are detailed in the Magnolia Dormitories Housing Agreement. Note that a student who has signed an Agreement and who enrolls that quarter will be held responsible for fulfilling his Agreement. A student who has signed an Agreement and who does not enroll will be charged full rental for that quarter but will receive a refund of his room deposit. A student who has applied for housing, has not cancelled before the applicable deadline, but has not signed an Agreement will forfeit his room deposit regardless of whether he enrolls.

Room and Board Charges — Room rent for air-conditioned rooms in Magnolia Dormitories is \$80.00 per school quarter. Rent for rooms not air-conditioned is \$60.00 per quarter. When available, private rooms are 50 percent additional. Residents of Magnolia Dormitories may elect to take meals in Magnolia Dining Hall, or elsewhere. The charge for meals, seven days a week, in the Dining Hall is \$135.00 per school quarter. The charge for meals, five days a week, is \$112.00 per quarter. All board charges are subject to payment of applicable sales tax. Although every effort will be made to maintain the present room and board rates, it may be necessary to increase these charges if related costs advance abnormally.

Room rent for the first quarter of residence in Magnolia Dormitories is payable in advance to that Office not later than: Fall Quarter — July 1; Winter Quarter — December 1; Spring Quarter — March 1; Summer Quarter — May 15. Payment may be made for one quarter, or for the full academic year. Rent due, following the first quarter of residence, is payable at the beginning of each quarter. Board accounts for students electing to take meals in Magnolia Dormitories are also due and payable in full at the beginning of each quarter. However, when deemed necessary, arrangements may be made with the Cashier in the Magnolia Dormitories Office for payment in not more than three installments.

Students who, at the beginning of a quarter, elect to have meals in Magnolia Dining Hall may withdraw from such arrangements within the first two weeks of the quarter. In these instances, there is a minimum charge for the two weeks plus a \$7.50 cancellation charge. No change in board arrangements may be made by dormitory residents after this period has elapsed. Students withdrawing from school after two weeks will be charged on a daily basis plus the \$7.50 cancellation charge.

Off-Campus Housing. The majority of the male students reside in fraternity houses and in privately-owned housing within the community. These accommodations include dormitories, boarding houses, homes, trailers, and apartments. Charges for rooms without meals range from \$50.00 to \$130.00 for each school quarter. Prices for meals in the various boarding houses range from \$50.00 to \$60.00 per month.

University representatives neither inspect nor approve off-campus housing. The only requirement is that the accommodations conform to the local code of health and safety regulations. However, the same general rules of student conduct apply in off-campus residences as are applicable in University operated dormitories. It is justifiably assumed that the conduct of each student living off-campus will reflect maturity of judgment and a feeling of pride in being a member of the Auburn community.

Thorough familiarity with the terms of the rental agreement and personal contact with the owner, or agent, will help avoid future misunderstandings. The quality of accommodations and the distance from the campus can best be determined through actual inspection before renting. A current file of available off-campus accommodations is maintained in the Office of Student Affairs, 304 Martin Hall. Lists of off-campus room vacancies are available upon request during the two months preceding the Fall Quarter.

Women Students

Housing for approximately 2,500 women is furnished in the women's dormitories. Residence in the dormitories is compulsory for all women students unless the Dean of Women gives them special permission to live elsewhere. A head resident is in charge of each dormitory and serves as counselor to the students as well as dormitory hostess. Women students are subject at all times to regulations of the University and the Associated Women Students.

All students residing in the dormitories must eat in the University dining halls where meals are served under the supervision of trained dietitians. Costs for special diets will be borne by the student.

The women's dormitories consist of the main dormitory group and the South Women's Dormitories.

In the main dormitory groups are the following:

No.	Name	No.	Name
I	Elizabeth Harper Hall	VIII	Ella Lupton Hall
II	Kate Conway Broun Hall	IX	Helen Keller Hall
III	Willie Little Hall	X	Marie Bankhead Owen Hall
IV	Kate Teague Hall	XI	Annie White Mell Hall
V	Letitia Dowdell Hall	XII	Dana King Catchell Hall
VI	Allie Glenn Hall		Alumni Hall
VII	Mary Lane Hall		Auburn Hall

Harper, Broun, Little, and Teague Halls, Social Center and the Women's Dining Hall form a quadrangle in the foreground of the dormitory area located between the University Library and the tennis courts and across from the Auburn Union. The Dining Hall is readily accessible to all the dormitories in the area. Each of the dormitories, I through X, houses approximately 100 girls and is arranged in suites consisting of two double rooms connected by a tiled bathroom. The rooms are equipped with twin beds, a double desk, two desk chairs, a reading lamp, a bedside table, an easy chair and two chests. Lounge space is furnished in each building. Dormitories I through IV are air-conditioned.

Annie White Mell Hall and Dana Gatchell Hall are smaller dormitories, housing approximately 50 girls each. They are located on Mell Street, adjacent to the other dormitories. These dormitories have community baths located at the end of the hallways and are furnished in a manner similar to the other dormitories.

Gatchell Hall is a cooperative dormitory. Here the girls prepare their own meals and do their own cleaning; as a result, cost of room and board is much less than in the other dormitories.

Alumni Hall, located on South College Street, houses approximately 100 girls. This dormitory has its own dining hall located in the basement of the building. The rooms are not in suites, there are community baths, and the furnishings are the same as in the other dormitories.

Auburn Hall, on East Thach Avenue, houses 182 girls. Community baths are located conveniently on each floor. The girls living here take their meals in Alumni Dining Hall, approximately two blocks away.

The offices of the Dean of Women, the Assistant Dean of Women, the Assistant to the Dean of Women, the Dormitory Supervisor, a cashier's office, and post office are located in Social Center. In addition, there are two large living rooms, a dining room, and a kitchen which may be used by student groups.

The South Women's Dormitories are located in the area in front of the President's home. Ten new air-conditioned dormitories, a dining hall, and an administration building are in the group.

The dormitories are:

- | | |
|---------------------------|-----------------------------|
| A Mollie Hollifield Hall | F Dixie Bibb Graves Hall |
| B Annie Smith Duncan Hall | G Camille Early Dowell Hall |
| C Marguerite Toomer Hall | H Stella White Knapp Hall |
| D Zoe Dobbs Hall | I Sarah Sasnett Hall |
| E Berta Dunn Hall | J Mary Boyd Hall |

Each of the three-story dormitories houses 110 girls and the six-story dormitories, Sasnett and Boyd, house 216 girls. The rooms are arranged in suites with a connecting bath between each two double rooms. Each room is furnished with twin beds, a bedside table, two desks and desk chairs, a double dresser and an easy chair. A formal lounge and an informal lounge are in each dormitory, with study rooms on each floor.

The administration building, Lucille Burton Hall, is similar to Social Center and houses the office of the Head of Women's Housing, the cashier's office and the post office for this area. There are several attractive lounges in the building and a number of guest rooms are on the second floor.

All students provide their own bed linens and any other items they may wish to use to make their rooms more attractive.

Room and board in all non-air-conditioned Women's Dormitories is \$195.00 per school quarter. Room and board charges in air-conditioned dormitories are \$215.00 per school quarter.

Advance payment on room rent in the amount of \$70.00, representing Fall Quarter's rent in non-air-conditioned dormitories, is required to be made before August 1, in order to guarantee room occupancy. This advance payment on room rent is required for Fall Quarter only. An additional \$20.00 per quarter room rent will be charged to those students living in air-conditioned dormitories after they arrive on the campus.

All women students are required to take meals in the dormitory dining halls and the board charge of \$125.00 per quarter plus sales tax will be collected when the student arrives on the campus.

Room Reservations — Dormitory reservation forms will be mailed to the applicant at the time she is accepted for admission to the University. This form must be returned to the Head of Women's Housing with a deposit of \$25.00 within three weeks of the date of acceptance. No room reservation is binding until this fee has been received. Advance payment on room rent will not be accepted at this time but will be requested on July 1 for the fall quarter.

Refund of room reservation fees will be made under the following conditions:

1. When reservations for the fall quarter are cancelled on or before August 1.
2. When the reservations for the winter quarter are cancelled on or before December 15.
3. When reservations for the spring quarter are cancelled on or before March 1.
4. When reservations for the summer quarter are cancelled on or before May 15.
5. When room is vacated at the end of a quarter and no further reservation is desired, if notice has been given by the deadline stated above.
6. When a student is prevented from entering because of scholastic deficiencies.
7. When personal illness or physical injury necessitates cancellation of reservations.

A room reservation is not valid unless the applicant has been admitted to Auburn University. No refund will be made of room reservation fees if the advance payment for room rent is not received by the University during the month of July for the Fall Quarter or if the applicant has not cancelled this room reservation before August 1 for the Fall Quarter.

Refund of advance payment for room rent — The advance payment for room rent will not be refunded unless room reservations are cancelled before August 1 for the Fall Quarter.

Married Students

Auburn University operates two housing projects for married students:

Caroline Draughton Village — 240 modern units, 80 two-bedroom and 160 one-bedroom furnished apartments. Furnishings include an all-electric kitchen, completely furnished living room and bedroom, spacious closets, ample cabinets, all-tiled bath with shower-tub combination, inner-spring mattresses, steam heat, TV outlet, etc. Also, 96 air-conditioned, two-bedroom apartments, furnished throughout with the exception of one bedroom.

Deposits are accepted for housing in Caroline Draughton Village from prospective married male students who have been accepted for admission.

Graves Centre Apartments — 22 temporary units partly furnished. Two and three bedrooms.

Deposits for Graves Centre Apartments are accepted only from married male Auburn undergraduates.

For additional information write: Alfred Carter, Housing Manager, 901 West Thach Avenue, Auburn, Alabama.

Off-Campus Housing — In addition to the University-operated apartment projects, housing may also be obtained in apartments, houses, and trailers in the Auburn community. Rent for these facilities is competitive with University-operated housing. The same general rules of conduct applicable in University-operated apartments and the same referral services of the Student Affairs Office, 304 Martin Hall, as indicated on page 22, apply for married students living off-campus.

Expenses and Financial Aid

Auburn University's fees have remained somewhat lower than fees charged at similar institutions in the Southeast and throughout the Nation as a whole. As costs have risen small increases in fees charged have been authorized by the Board of Trustees from time to time to meet these increased costs. Every effort is made to hold these charges to the minimum.

Payment of fees and charges — Students are expected to meet all financial obligations when they fall due. Auburn University reserves the right to deny admission to or to drop any student who fails to meet promptly his financial obligations to the University. It is each student's responsibility to keep informed of all registration and fee payment dates, deadlines and other requirements by referring to the official university calendar of events in the catalog, announcements printed in the Plainsman or disseminated through other media from time to time. Where necessary, students should inform their parents of the deadline dates and the necessity for meeting them.

Checks — Checks given in payment of fees and charges are accepted subject to final payment. If the student's bank does not honor the demand for payment and returns the check unpaid, the student will be assessed the late penalty of \$5.00 or \$10.00, whichever is applicable, and if payment is not cleared promptly the student's registration will be cancelled.

Veterans — Veterans enrolled under the Federal G.I. Bill P.L. 358 and P.L. 634 receive their allowances directly from the Government and are responsible for paying their fees and charges on the same basis as other students (This does not apply to P.L. 894 or P.L. 815).

Basic Quarterly Charges For Undergraduate, Graduate, And Unclassified Students

Any student taking 9 or more credit hours or who is certified by the School of Graduate Studies as a full-time student will pay full fees.

University and Student Activity Fee (All Curricula) \$100.00

The University Fee is used to meet part of the cost of instruction, physical training and development, laboratory materials and supplies for student's use, maintenance, operation, and expansion of the physical plant, Library, Student Health Services and Student Activities.

Student Activities Fee supports such activities on campus as intercollegiate athletics, band, debating, dramatic arts, entertainment, exhibits, Glomerata, intramural sports, music, Plainsman, lectures and concerts, religious life, social affairs, student government, student union activities and operations, and Tiger Cub. This fee includes \$.25 held in reserve to cover unnecessary damage to University property by students. Any unused portion of this amount will revert to the credit of activities listed above.

Non-Resident Fee \$100.00

Charged all non-resident full-time students other than graduate students and sons and daughters of ministers. (See catalog section relating to residency requirements.) Six weeks summer students taking 4 hours or more will pay one-half of quarterly fee.

Part-time Students (Not exceeding 8 hours per quarter, 4 hours per six weeks)

Registration fee 15.00

Additional fee per credit hour 10.00

No additional charge is made beyond 9 hours and students who register for two six-weeks terms will pay a maximum of \$100.00 as residents or \$200.00 as non-residents where 9 or more hours are carried. The registration fee is remitted to faculty and staff. All students except faculty and staff are eligible to participate in Student Health Services and Student Activities.

Clearing for Graduation Fee 15.00

A student who is a candidate for a degree in a quarter in which no credit work is taken is required to register in such quarter as a pre-requisite to graduation. (For members of the faculty and staff the charge shall be reduced to \$5.00.) Graduation fee is to be paid in addition to this charge.

Other Fees And Charges

Service and Penalty Charges for Late Registration or Payment \$5.00-\$10.00

All students, regardless of classification, must clear fees and tuition by the deadline set by the University, or pay the following additional charges:

Up to and including final official Add and Drop Date as listed in the University Calendar	5.00
After Add and Drop period closes	10.00

Special Examination or Equivalency Examination Fee (each) 5.00

Re-examination Fee (each) 2.00

Change in Curriculum Fee 5.00

Change in Course Fee 5.00

Charge is made in cases where student is not required or advised by the University to change, but has the Dean's permission to do so after classes begin.

Room and Board (Women) \$195.00 to \$215.00

All women students, except those granted special permission by the Dean of Women, or those enrolled in the School of Graduate Studies, are required to live in dormitories and take their meals at the Women's Dining Halls. (Add sales tax for meals.)

Room and Board (Men) \$195.00 to \$215.00

Residents in the dormitories for men may elect to take their meals in the dormitory dining halls, or elsewhere. Men students may also live off-campus. For further information see page 21. (Add sales tax for meals.)

R.O.T.C. Uniform and Equipment Deposit (refundable) 30.00

All students, both Basic and Advanced, are required to deposit the sum of \$30.00 with the Bursar of the University, prior to enrollment in R.O.T.C. They are then furnished a uniform in good condition and other necessary supplies through the R.O.T.C. Supply Office. Upon completion of the R.O.T.C. course of instruction, or upon withdrawal of the student therefrom, the uniform and other supplies are turned in and the deposit returned to the student, less \$1.50 per quarter withheld by the Bursar of the University to cover the cost of cleaning and repair of uniforms, when applicable and to support R.O.T.C. activities as follows: scholarship and marksmanship awards; special apparel and equipment for competitive drill teams, R.O.T.C. honoraries, and rifle teams representing Auburn University R.O.T.C.; uniforms for sponsors; the official annual Military Ball in an amount not to exceed \$.40 per cadet enrolled that quarter. This charge is subject to change in accordance with requirements of the Army, Navy, and Air Force training programs.

Service and Penalty Charges

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|--|---------------|
| (a.) Registration fees billed home | 2.00 |
| (b.) Charge for returned checks (each) | 2.00 |
| (c.) Failure to pay fees due or make returned check good on notice, where two or more notices required | 5.00 or 10.00 |

Notice — CHECKS ARE ACCEPTED SUBJECT TO COLLECTION

Music Fees

Applied Music per quarter — one ½ hour lesson per week	20.00
Applied Music — two ½ hour lessons per week	30.00
Applied Fundamentals of Music — per quarter (Class instruction in piano or violin)	5.00
Practice Fee — per quarter — one hour per day	3.00
two hours per day	5.00
Instrumental Rental Fee — per quarter	3.00

Graduation Fee

10.00

Payable at beginning of the quarter in which the student expects to receive a degree.

Duplicate Diploma Fee

5.00

Graduate Thesis and Dissertation Binding Fee (per copy)

2.50

Three to five copies usually required.

Doctoral Dissertation Microfilming Fee

25.00

Transcript Fee

1.00

Auditing Fee (per course)

10.00

Any student who pays less than full fees must pay this fee for auditing a course. (Not charged to faculty and staff.)

Correspondence Study Course Fees (each course)

First credit hour 10.00

Each additional credit hour 5.00

Internship Fee — Veterinary Medicine

Registration Fee only 15.00

Nursery School and Kindergarten

Nursery School Group, 9 a.m. to 12 noon (per quarter) 22.00

Nursery School Group, 9 a.m. to 12:45 p.m. (per quarter) 35.00

Kindergarten Group, 1 p.m. to 4 p.m. (per quarter) 22.00

For application information, contact Head of Dept. of Family Life and Early Childhood Education.

Registration Fee Cancellations or Refunds

If student pays fees prior to opening of the quarter, then withdraws prior to registration date for new students, all fees will be refunded. If student resigns within the first two weeks after classes begin, all fees, less charges, will be refunded, except the sum of \$10.00 will be retained as a registration fee, and if the student has used the University Health Services, during that quarter, the \$6.00 Health Fee will be retained also. No refunds will be made in case of withdrawal after two weeks of classes, except in cases of withdrawal caused by personal illness or call into military service. Students suspended for disciplinary reasons are not eligible for refunds nor cancellation of accounts due.

Financial Aid At Auburn

Auburn University has an Office of Student Financial Aid to provide financial assistance to aid worthy students in meeting educational costs incurred while attending the University.

Auburn University participates in the College Scholarship Service (CSS) of the College Entrance Examination Board. Participants in CSS subscribe to the principle that the amount of financial aid granted a student should be based upon financial need. The CSS assists colleges and universities and other agencies in determining the student's need for financial assistance. Entering students seeking financial assistance are required to submit a copy of the Parents' Confidential Statement (PCS) form to the College Scholarship Service, designating Auburn University as one of the recipients, by March 15 of each year.

A pamphlet describing scholarship and loan funds may be obtained by writing to the Office of Student Financial Aid, Auburn University.

Sources of aid not available through the Office of Student Financial Aid are as follows:

Students with physical handicaps may obtain grants-in-aid covering University fees, books, supplies, and, in some cases, general maintenance through the Vocational Rehabilitation Service. Federal and state appropriations support this service. For information and application blanks, contact Mr. Frank Jenkins, District Supervisor, Vocational Rehabilitation Service, 110 Thach Hall, Auburn, Alabama.

To promote scholarship and research among graduate students, a number of Teaching Fellowships, Graduate Assistantships, and Research Fellowships and Assistantships carrying substantial stipends are available. Apply not later than March 15 for the following September. Contact the Dean of the Graduate School for information and application blanks.

Employment Service

The Student Financial Aid Office in 202 Martin Hall assists students in obtaining employment to defray a portion of their educational expenses. The University, however, does not advise freshmen to attempt work during their first quarter on campus unless it is essential. Earnings vary with the job requirements and previous work experience. Since employers must know when a student is free for work, little assistance can be given any student until his class schedule is known.

The Office functions only as a referral agency and cannot promise jobs to students; however, every attempt is made to place capable students needing work.

Students are also assisted in locating full-time summer employment at resorts, national parks, camps, with governmental agencies and in business and industry. Information and applications for such employment should be secured early in the Winter Quarter.

Student wives and other non-students may secure assistance in locating suitable employment on the campus by contacting the University Personnel Office which is located on the ground floor of Langdon Hall.

Co-operative Education Program

The Co-operative Education Program provides opportunities for students to alternate quarters of academic study with quarters of experience in industry, business, and government positions.

The coordination of academic study and work experience combines theory and practice in the educational process. As a consequence, students find more meaning in their studies and their motivation is increased. The industrial experience contributes to the development of a sense of individual responsibility. The student's judgment and maturity also develop more fully, and a better appreciation of the importance of human relations is gained. Since the employer pays the student a wage or salary during the industrial quarters, this assists the student considerably in his educational expenses.

The Co-operative Education Program is a five-year plan. A student must complete at least two quarters of the freshman year with an above-average scholastic record before he is placed in industry. Transfer students are also considered for the program. Normally a student has seven quarters in industry, and during the senior year he remains in continuous residence in school.

The program is offered in aerospace, chemical, civil, electrical, industrial, and mechanical engineering, applied physics, physics, aviation management, textile management and textile science, business administration, mathematics, pharmacy, agricultural engineering, textile engineering, and industrial design.

Additional information and a booklet describing the program may be secured from the Director, Cooperative Education, 107 Ramsay Hall.

Educational Benefits For Veterans

Many current publications describe in complete detail the educational programs authorized by Congress under the following federal acts: Public Law 16 (Vocational Rehabilitation), Public Laws 894 and 815 (Vocational Rehabilitation Revised), Public Law 634 (War Orphans Educational Assistance Act) and Public Law 358 (Veterans Readjustment Benefits Act of 1966).

Auburn University is fully approved by the Veterans Administration to give training under these laws. Veterans planning to attend school under one of these laws should make application directly to the Veterans Administration and get prior approval before entering school.

Those entering school under the benefits of any one of the laws should have sufficient funds to finance themselves for one quarter or at least until payments begin coming in from the Veterans Administration (approximately two months).

For further information write to the Office of Student Financial Aid, Auburn University, Auburn, Alabama.

Student Services

The Dean of Student Affairs, the Dean of Women and their respective staffs assist students with their problems and aid them in their adjustment to University life. Their offices serve as a general clearing house for matters pertaining to the welfare of all students.

The Dean of Student Affairs supervises all projects supported by the student activities fee and works mutually with students or groups on campus problems. His office is located in the Mary E. Martin Hall.

The Dean of Women's duties include matters pertaining to the welfare of all women students. As Social Director she approves all social functions that University women attend. Her offices are located in the Social Center.

Each academic dean, either personally or through appointed assistants, guides each student in his academic problems, especially in arranging schedules, maintaining continuation in residence requirements, and satisfying subject-matter degree requirements.

The Registrar and his staff counsel students regarding registration, academic records, graduation requirements, and Selective Service regulations. The Registrar's Office is located on the ground floor of the Mary E. Martin Hall.

Counseling Service

A variety of services is provided for all students free of charge by the Student Counseling Service in 305-318 Martin Hall. Students may come by the offices in person to make an appointment or call 826-4744. The offices are open from 8 a.m. to 12 noon and 1 to 5 p.m., Monday through Friday.

The staff of the Student Counseling Service perceives counseling as a process in which the student comes to the counselor voluntarily to gain additional self-understanding that he may solve his own problems as they arise now and in the future. The counselors do not perceive themselves as advisors, but as individuals who are concerned with helping students find solutions to their problems. The counselors respect the ability of the students to make their own choices after they have a better understanding of themselves. Counseling is available to all students at Auburn. These services include:

Educational Counseling. In addition to the academic departmental advisors of the University, the Student Counseling Service provides services to students who are having academic difficulties. Attempts will be made to determine the causes of the difficulty. Counselors help students in study habits, note taking, listening skills. Educational Counseling is interrelated with other areas, and only by a complete understanding of all problems can a student's academic difficulties be alleviated.

Personal Counseling. Many University students have personal concerns which may interfere with their academic success. Counselors attempt to offer an atmosphere in which students may discuss such problems freely and confidentially. Personal emotional adjustment, dating, marriage, home relationships, social relationships, adjustment to college work, and plans for the future are only a few of the many concerns. Often, effective solutions can be reached by a student through a counselor-counsee relationship.

Career Counseling. Counselors assist students in making a thorough self-appraisal of interests, abilities, and personality traits so that they may utilize this information in making a wise career choice. Counselors interpret the data from tests, discuss all possibilities of success, and help the student work through the decision-making process. Students who are indecisive about a major, or who wish information on their adaptability to selected programs of study may gain a realistic appraisal of themselves through counseling and become better equipped to make more intelligent academic choices.

Learning Enhancement Groups. Individual growth and development often are enhanced by experiences in small groups that meet regularly with a Student Counseling Service staff member. Activities vary with the needs and interests of individuals in each group.

The Career Information Library maintained in the Student Counseling Service is available to all students for use without appointment.

University Placement Service

The University Placement Service assists graduates in obtaining employment in their chosen professions. This office brings representatives of commercial and industrial firms as well as government agencies to the campus each quarter for personal interviews with students. Students who desire information and placement assistance should confer with the Director, 400 Martin Hall.

Student Health Service

The Student Health Service of Auburn University renders the following services: (1) out-patient medical and surgical service by staff doctors only; (2) hospitalization at the University Infirmary; (3) local ambulance service; (4) medical supervision of the physical education and athletic programs; (5) health education; and (6) campus sanitation. These services are administered by the medical staff of the Health Service.

The University owns and operates a 65-bed infirmary equipped with a modern clinical laboratory and X-ray facilities. Working in conjunction with the State Health Department, annual chest X-rays are given to students, faculty members and employees of the school.

Each entering student is required to file a medical examination report completed by his private physician before he can be admitted to Auburn University. Forms for this report will be furnished by the University.

The Student Counseling Service and the Student Health Service are available to students in helping them solve emotional problems. A psychiatrist is also in attendance at the Infirmary.

No major surgery is performed in the Infirmary. Elective surgery should be performed in the student's home town, or by referral to a specialist during vacation periods or to a local surgeon. Emergency surgical operations are the responsibility of the student. Students who are in need of emergency operations and those having severe multiple or compound fractures will be referred for treatment and the expense will be a responsibility of the student. The University has available a surgical consultant who may be called when needed. The expense will be charged to the student requiring such consultation.

The Student Health Service is available to all regularly enrolled students of the institution. Medical service is not provided by the University for the families of married students, but a list of local physicians will be made available by the Student Health Service upon request.

The Out-Patient Clinic is open from 8:00 a.m. to 11:30 a.m. and 1:00 p.m. to 4:00 p.m. each week day, Monday through Friday. Clinic hours are from 8:00 a.m. to 11:30 a.m. on Saturday, and 8:30 a.m. to 9:30 a.m. on Sunday. Emergency treatment is available 24 hours daily. Visiting hours at the Infirmary are from 10:00 a.m. to 1:00 p.m., 3:00 p.m. to 8:00 p.m. each day. Only two visitors per patient are allowed simultaneously.

University physicians do not make calls outside the Infirmary or attempt to treat students in their rooms. Students who are too ill to come to the Infirmary will be furnished with local ambulance service. Parents will be notified by the University physician if a student is believed to be seriously ill.

Each student is entitled to 15 days free hospitalization at the University Infirmary during each school year. This includes professional services of the

medical staff of the Student Health Service, general floor nursing care, ordinary medications, room and board, linen, routine laboratory and X-ray procedures.

The Student Health Fee does not include surgery, consultation, special X-rays, special medications, or special nurses. A charge is made for these, but only an amount sufficient to cover the cost.

The services of local physicians are available at the students' expense either at their places of residence or when properly admitted to the University Infirmary.

The Student Health Service is not available to students during the following vacation periods: Christmas holidays and the periods between the close of the Summer Quarter and the opening of the Fall Quarter.

During epidemics, the staff of the Student Health Service will make every possible effort to care for ill students at the Infirmary, but if Infirmary staff and facilities should be inadequate, the University will not assume responsibility for payment of services rendered by outside doctors or other hospitals.

Speech And Hearing Clinic

The Speech and Hearing Clinic of the Department of Speech provides a full range of services for children and adults, including comprehensive speech and hearing examinations. Students with speech problems, or hearing problems are urged to contact the Speech and Hearing Clinic during their first quarter of residence. The Speech and Hearing Clinic also carries on a continuing program to provide assistance for all students for whom English is a second language. Appointments may be made in Room 201 Samford for speech and/or hearing examinations or by calling 826-4682. No fees are charged for student services.

Student Book Stores

Alpha Phi Omega service fraternity sponsors a non-profit bookstore on the campus. The purpose of this store is to provide a more economical means for students to purchase and sell their books. The bookstore is located in the sub-way of the "L" building. A University Book Store is located in the Auburn Union.

Student Insurance

The Student Body sponsors an Accident and Sickness Insurance Plan which is available to all full-time or part-time undergraduate and graduate students. This Plan is underwritten by Standard Life and Accident Insurance Company, Oklahoma City, Oklahoma, and is administered by an insurance agency in the state. It provides the student with maximum coverage at minimum cost. Benefits include hospital fees and expenses, surgery, visits by a physician, ambulance service, X-Rays, dentist, as well as other items. Enrollment in the Plan is offered during each registration period. Further information may be obtained from the Office of Student Affairs, 304 Mary Martin Hall.

Student Activities

The Student Body

The student body is composed of all Auburn undergraduate students, and elects its own officers. Divided into three branches, the student government works cooperatively for the betterment of students of Auburn. Students are encouraged to take part in the political life of the campus.

Student Government

Each spring members of the three-branch student government are elected. Student government controls extracurricular activities, provides members for joint student-faculty committees, and works for the welfare of the University community.

Student government is made up of the executive, legislative and judicial branches. The executive group is composed of the President, Vice President, Secretary, Treasurer, and members of the Executive Cabinet. The 21 cabinet members are known as Superintendents and are appointed by the President and approved by the Senate. In addition, there may be advisory committees to the President.

Members of the legislative branch, the Student Senate, are elected from each of the nine undergraduate schools. In addition, there are six Senators-at-Large. Students refer their suggestions to their senators, who bring them before the Senate.

The Student Jurisprudence Committee has one presiding Justice and six student Associate Justices and is vested with the Judicial power of the Student Body. The committee interprets the Student Body constitution and renders decisions.

Associated Women Students

The purpose of the Associated Women Students is to uphold high standards of scholarship, and to create, promote and maintain a high sense of honor and integrity in all phases of University life.

Each Auburn woman student is automatically a member of AWS when she enters the University. AWS is made up of three councils: the Executive, Legislative, and Judiciary. The Legislative Council is composed of representatives of the dormitory house councils and the elected officers.

AWS plans and conducts a well-organized program for women students.

Student Publications

The Auburn Engineer — published monthly for and by students in Engineering.

The Auburn Pharmacist — published quarterly by Phi Delta Chi, professional Pharmacy fraternity.

The Auburn Veterinarian — booklet published quarterly for and by students in Veterinary Medicine.

Auburn Design — published by the Industrial Design Forum.

The Glomerata — student annual publication; production costs covered by Student Activities Fee, student organizations and advertising.

The Helm — a monthly paper published by NROTC students.

The Auburn Plainsman — a weekly paper published by students of the institution; production costs covered by Student Activities Fee and advertising.

The Tiger Cub — annual student handbook; production costs covered by Student Activities Fee and advertising.

The Auburn Union

The Auburn Union is the center of non-academic student and faculty life. The building, located in the heart of the campus, provides a living room for students away from home — a place to relax, to entertain friends, and to find convenient dining and school supply services. Planned programs of social, recreational and cultural events help develop students in the art of human relations.

Located in the Auburn Union are the War Eagle Cafeteria and Snack Bar, Alumni Offices, Faculty Club, Student Government Offices, Publications Offices, University Book Store, Union Ballroom, meeting rooms for student organizations, commuters lounges, banquet rooms, reading and TV lounges, and Union staff offices.

The main desk has become the central information center on campus. On hand are the registration cards of each student enrolled, listing class schedule, home address, and campus address.

Religious Organizations

The student religious organizations of the churches of Auburn provide opportunity for worship, participation in religious programs, wholesome recreational and social activity, and closer personal association with members of the faculty.

The Religious Affairs Committee is composed of students and members of the University faculty and staff. It initiates, promotes, sponsors, and coordinates campus-wide religious activities in order to benefit the students of Auburn University.

Independent Organizations

Towers. Towers is a social and service organization for women students not affiliated with a social sorority. It was organized in 1958 and its aims are: to maintain close sorority and independent relationship at Auburn; to encourage leadership and scholarship among members and affiliates; to provide an outlet for non-affiliated women students; to promote University projects that benefit the entire student body.

Cultural, Musical, Theatrical Activities

Lecture and Concert Series. Outstanding concert artists and nationally known lecturers are presented each year for the enjoyment and cultural development of Auburn students. Additional lectures, concerts and special programs are presented by the various Schools, and the Auburn Union stages frequent entertainment by popular artists. Most of these events are financed by the student activities fee, and students are admitted without charge upon presentation of ID cards.

Auburn Bands. Auburn University supports a Marching and Concert band. The Marching Band frequently accompanies the football team on game trips, and represents the University at various campus, state, and out-of-state functions. It consists of approximately 140 players who receive special training in drill formations. Physical Education may be waived during the Fall Quarter for students who are members of the Marching Band.

The Concert Band consists of advanced students who have passed the work of the preliminary bands, and students who are preparing to teach band in the schools. It provides music for various University activities and some off-campus concert tours. Regular training which embodies instruction in the rudiments of music and the use of band instruments is given free of charge at the band practice periods. These activities may be taken with or without degree credit.

Auburn Orchestra. The Music Department sponsors this symphonic group for the development of musical talent and perfection of individual achievement in ensemble playing. Students in the early stages of musical training, especially those in violin, viola and cello, are invited to participate. Membership is by permission of the director. This activity may be taken with or without degree credit.

Glee Clubs. The Men's Glee Club, the Choral Union, and the Concert Choir offer students an opportunity to sing. These groups give concerts here and about the state. College credit is allowed for these activities. Regular appearances are scheduled on Educational Television.

Opera Workshop. The Workshop is open to all students interested in musical or dramatic work in producing operas. Membership is open with or without degree credit, training students in the various phases of operatic production largely through actual stage performances of outstanding operas.

Auburn Players. This theatrical group presents well-known Broadway plays during the year for the students and townspeople. At least 50 performances take place in the five productions presented annually.

Dolphins. The Dolphin Club was organized for both men and women students interested in synchronized swimming. A water show is presented each spring.

Educational Television. Programs produced in Auburn's TV studios are seen over most of the state through the Alabama Educational Television Network. Staff members from all three divisions of Auburn take part in this programming. The Department offers opportunity for Auburn students in this field, either through regular courses, positions for observation or employment in either the technical or program production areas.

Intramural Sports

Intramural sports offer students many opportunities to participate in competitive team and individual sports, and recreational activities. Healthful sports, good sportsmanship, and friendly competition are stressed. All students are urged to participate in the program which is entirely voluntary and largely student-supported and supervised.

Regular tournaments are offered in seasonal team and individual sports.

Fall Quarter. — Touch football, swimming, volleyball.

Winter Quarter. — Basketball, bowling, table tennis.

Spring Quarter. — Badminton, golf, softball, tennis, track, horseshoes.

Summer Quarter. — Softball, tennis, golf, swimming, bowling.

Intramural Sports for Men also operates a check-out service in the Student Activities Building. Any student or student group may check out athletic or recreation equipment on a 24 hour or weekend basis.

NATIONAL HONOR SOCIETIES

The following members of the Association of College Honor Societies have established chapters at Auburn:

Alpha Epsilon Delta (Pre-Medicine)
Alpha Lambda Delta (Freshman Scholastic—Women)
Chi Epsilon (Civil Engineering)
Delta Sigma Rho—Tau Kappa Alpha (Forensics)
Eta Kappa Nu (Electrical Engineering)
Mortar Board (Student Leadership—Senior Women)
Omicron Delta Kappa (Student Leadership—Junior & Senior Men)

Phi Alpha Theta (History)
Phi Eta Sigma (Scholarship—Freshmen—Men)
Phi Kappa Phi (Scholarship—Senior Men & Women)
Pi Tau Sigma (Mechanical, Aerospace Engineering)
Psi Chi (Psychology)
Rho Chi (Pharmacy)
Sigma Pi Sigma (Physics)
Tau Beta Pi (Engineering)
Xi Sigma Pi (Forestry)

Other National Honor Societies:

Gamma Sigma Delta (Agriculture)
Kappa Delta Pi (Education)
Omicron Nu (Home Economics)

Pi Mu Epsilon (Mathematics)
Pi Delta Phi (French)

NATIONAL RECOGNITION SOCIETIES

The following national societies have chapters established at Auburn:

Alpha Phi Omega (Campus Service—Men)
Alpha Zeta (Agriculture)
Arnold Air Society (Air Force ROTC)
Angel Flight (AFROTC Coed Auxiliary)
Block and Bridle (Animal Science)
Cwens (Student Leadership—Sophomore Women)
Omicron Delta Epsilon (Economics)

Pershing Rifles (Air Force & Army Basic Cadets)
Phi Beta Lambda (Business Education)
Phi Lambda Upsilon (Chemistry)
Phi Zeta (Veterinary Medicine)
Pi Sigma Epsilon (Marketing)
Scabbard and Blade (Military)
Sigma Tau Delta (English)
Steering (Navy ROTC)

CAMPUS LEADERSHIP AND SERVICE ORGANIZATIONS

"A" Club—Varsity lettermen in baseball, basketball, football, track or cheerleading.
Auburn Veterans Association—Service Organizations open to veterans of the Armed Services.
Circle "K" Club—International Service Club for college men sponsored by Kiwanis International.
*Conservative Club—For those students interested in conservative government.
Spades—Honor Society of ten most outstanding senior men.
Squires—Honor Society for most outstanding sophomore men.
Towers—Independent Women's Service and Social Organization.

RELIGIOUS ORGANIZATIONS

Baptist Student Union—Baptist
The Canterbury Forum—Episcopal
Church of Christ Student Group—Church of Christ
Christian Science Organization—Christian Science
Jewish Hillel Group—Jewish

Liahona Fellowship—Reorganized Church of Jesus Christ of Latter Day Saints
Lutheran Student Fellowship—Lutheran
Newman Club—Catholic
Unitarian Universalist Fellowship—Unitarian
Wesley Foundation—Methodist
Westminster Fellowship—Presbyterian

DEPARTMENTAL AND PROFESSIONAL ORGANIZATIONS

- Agricultural Council
 Agricultural Economics Club
 Agronomy Club
 American Association of Textile Colorists and Chemists
 American Chemical Society
 American Institute of Aeronautics and Astronautics
 American Institute of Architects
 American Institute of Chemical Engineers
 American Institute of Electrical & Electronic Engineers
 American Institute of Interior Designers
 American Pharmaceutical Association
 American Society of Agricultural Engineers
 American Society of Civil Engineers
 American Society of Mechanical Engineers
 Art Guild
 *Auburn Aero Club
 *Auburn Art Forum
 Auburn Conservation Club
 Auburn Co-operative Education Society
 Auburn Debate Council
 *Auburn German Club
 Auburn History Club
 Auburn Law Society
 Auburn Players
 Auburn Soccer Club
 Auburn Student Education Association
 Auburn Tiger Sharks (Skindiving)
 Association for Childhood Education
 *Association for Computing Machinery
 Block and Bridle Club
 Builders Guild
 Chemistry Council
 Collegiate 4-H Club
 Dairy Science Club
 Dana King Gatchell Home Economics Club
 Delta Omicron (Music—Women)
 Delta Sigma Pi (Business Administration)
 Education Council
 Engineers Council
 Forestry Club
 Future Farmers of America
 Home Economics Council
 Horticultural Forum
 Industrial Arts Club
 Industrial Design Forum
 International Relations Club
 Jr. American Veterinary Medical Association
 Kappa Epsilon (Pharmacy—Women)
 Kappa Psi (Pharmacy—Men)
 Lambda Tau
 *National Collegiate Association for Secretaries
 Omicron Kappa Pi (Interior Design)
 Pharmacy Council
 Phi Delta Chi (Pharmacy)
 *Phi Lambda Sigma (Pharmacy)
 Phi Psi (Textiles)
 Physical Education Club
 Poultry Science Club
 Pre-Veterinary Medical Association
 Saddle D'Armes Fencing Club
 Scarab (Architecture)
 Society for the Advancement of Management
 Science and Literature Council
 Spiked Shoe (Varsity Lettermen in Track)
 Sociology Club
 Women's Recreation Association

STUDENT WIVES CLUBS

- Dames Club
 Forestry Wives Club
 Junior AVMA Auxiliary
 Keystone (Building Construction)
 Pharmacy Wives Club
 Wives of Auburn Engineers
 Wives of Industrial Management Students

SOCIAL FRATERNITIES AND SORORITIES

- Alpha Gamma Rho
 Alpha Psi (professional)
 Alpha Tau Omega
 Beta Theta Pi
 Delta Chi
 Delta Sigma Phi
 Delta Tau Delta
 Delta Upsilon
 Kappa Alpha Order
 Kappa Sigma
 Lambda Chi Alpha
 Omega Tau Sigma (professional)
 Phi Delta Theta
 Phi Gamma Delta
 Phi Kappa Tau
 Pi Kappa Alpha
 Pi Kappa Phi
 Sigma Alpha Epsilon
 Sigma Chi
 Sigma Nu
 Sigma Phi Epsilon
 Sigma Pi
 Tau Kappa Epsilon
 Theta Chi
 Theta Xi

The following national social fraternities have established colonies at Auburn: Chi Phi and Alpha Epsilon Pi.

The Interfraternity Council regulates the relationships between the member fraternities.

SORORITIES

- Alpha Chi Omega
 Alpha Delta Pi
 Alpha Gamma Delta
 Alpha Omicron Pi
 Chi Omega
 Delta Delta Delta
 Delta Zeta
 Kappa Alpha Theta
 Kappa Delta
 Kappa Kappa Gamma
 Phi Mu
 Pi Beta Phi
 Zeta Tau Alpha

The Pan-Hellenic Council regulates the relationships of the sororities.

* Organizations marked by an asterisk are serving a trial period prior to official University recognition.

University Regulations

Academic Regulations

Students pursuing academic programs must comply with regulations and follow procedures prescribed by the University. Regulations relating to registration, class attendance, physical education, military training, grading system, examinations, degree requirements, honors, and other academic matters are presented in the following pages.

Class Enrollment And Attendance

GENERAL REQUIREMENTS

Class Attendance. Students are expected to attend punctually every recitation, laboratory exercise, and other University duties.

Registration. The orientation of new freshmen and registration of new and previously enrolled students will be held each quarter as indicated in the University Calendar. A service charge will be made for registration after the official dates listed in the University Calendar. (See section on Fees and Charges, page 26.)

Every student is required to be registered in Auburn University in his quarter of graduation or in any other quarter when, in clearing an "incomplete" grade, working on a graduate thesis, or engaged in any other endeavor relating to his normal progress as a student, he makes use of the instructional staff and the facilities of the University. For such special registration, a fee is charged. Registration in a correspondence course through Auburn University satisfies this requirement.

Late Enrollment. After the date specified in the University Calendar as the last day for new registrations, no student may register except by permission of the dean. The load of a student who registers late shall be reduced at the discretion of his dean and an extra service charge will be made. (See page 26.)

Back Work. In arranging a student's work for each year the dean will require him to schedule first the back work of the lower class or classes, but where this would work a serious hardship on the student the dean may make such exceptions as he deems necessary.

Prerequisites. Prerequisite or corequisite requirements of courses are listed with the course descriptions in the University catalog. It is the responsibility of the student to know these requirements and to comply with them when registering.

Any waiver of these requirements must be approved by the instructor concerned or his department head. In addition the waiver of the junior standing prerequisite established for courses that may be taken for graduate credit must have the approval of the Dean of the Graduate School.

Student Load. The normal quarterly load for a student for any year shall be the maximum number of credit hours prescribed in the curriculum for any

quarter of that year. If approved or recommended by the dean, less than the normal load may be taken.

Any freshman or sophomore student, who for any reason is excused from ROTC and Physical Education, when the normal load is 17 hours, may be permitted to take a load of 18 hours inasmuch as no two-hour elective courses are available.

Upon approval of his dean, a student may schedule an overload not to exceed 23 quarter hours if, during his last residence quarter at Auburn University in which he carried 15 or more hours, he earned a 1.5 grade point quotient and passed all work attempted. The student who has scheduled fewer than 15 quarter hours during an intervening quarter or quarters will retain the overload privilege if he has passed all work carried with a minimum grade point quotient of 1.5 in each of the intervening quarters. A student who does not qualify for an overload at the time of regular registration, but who meets the requirements at the end of the quarter, may schedule an overload during either the final registration period or the schedule adjustment period. In special cases the student's dean may make exceptions to the above regulations by written notice to the Registrar.

At the discretion of the dean, a graduating senior qualified to take an overload may be allowed to take up to 25 hours, and one not qualified, a load of 23 hours, provided such load will enable him to graduate in that particular quarter. (This is a one-time privilege and any such senior failing to graduate in that quarter will be subject to penalty for overload.)

A student registering for work in excess of the permitted load will be required to drop the overload during the Official Change-in-Registration Period at the beginning of the quarter. If by oversight an unauthorized overload is carried, the requirements for graduation will be increased by the number of credit hours carried in excess of the permitted load.

In the Summer Quarter, students taking courses on the term basis not eligible for the overload will be restricted to the prescribed quarterly load but may take, in one term: (1) one five-hour term course plus 10 hours of regular quarter courses; or (2) two five-hour term subjects.

Change in Program. A student is required to have approval of his dean before changing his program of studies. A fee of \$1.00 will be charged for each change in schedule and \$5.00 for change in curriculum after classwork begins, except schedule changes made necessary by failure at the final examination period, or as a result of special examinations, or in special cases approved by the Registrar.

A grade of "Withdrawn" (W) will be assigned when the student drops a course with the permission of the dean within the first two weeks of a quarter, or when he is permitted for special reasons to drop the course without penalty after this period.

A grade of "Withdrawn Failing" (WF) will be recorded in the Registrar's Office for a subject dropped on request of the student after the second week of a quarter. Exceptions are made only as authorized by the dean.

A student's dean may make such substitutions as he deems necessary in the student's course of study. The student's load may also be reduced by the dean when circumstances seem to make it advisable.

Classification. Each undergraduate student will be classified according to the number of quarter credit hours he has earned at Auburn University and other institutions as follows: Freshman, 47 or fewer; Sophomore, 48 to 98; Junior, 99 to 152; Senior, 153 or over.

A student who has been awarded one baccalaureate degree and pursues another course for a second baccalaureate degree will be classified as an undergraduate student.

Students who for reasons acceptable to the dean do not wish to pursue regular courses either as to load or curriculum will be admitted as unclassified students.

Auditing Privilege. A person not regularly enrolled in the University may audit lecture courses or the lecture part of a combined lecture and laboratory course with the approval of the dean and instructor of the subject. The auditing privilege is not regularly permitted in laboratory or combined lecture and laboratory courses; however, in exceptional cases, with the approval of the dean and instructor concerned, persons not regularly enrolled may audit such courses upon payment of the auditing and laboratory fees. Auditors register with the dean and Registrar and are listed on the class roll but do not participate in classroom discussions, take tests or final examinations, or make reports and may receive no grades or credits. A fee of \$5.00 will be charged for auditing a lecture course. Regularly enrolled students carrying 10 hours or more and members of the faculty may audit lecture courses upon approval of the dean and the instructor concerned without payment of the auditing fee. Graduate students may audit only one course per quarter.

Curriculum Transfer. If a student transfers from one curriculum to another requiring fewer hours, a year of credit in the former will not carry more than a year of credit in the latter.

If a student transfers from one curriculum to another requiring more hours, the graduation requirements of the new curriculum must be met as far as hours and subject matter are concerned.

For students transferring from other institutions, credit will be allowed for ROTC and Physical Education satisfactorily completed, on the same basis as if the work were taken at Auburn.

A student who is excused for any reason from any subject will be required to substitute other approved work.

Leave of Absence. A student whose work is satisfactory — as reported by his instructors — may be granted a leave of absence to represent the University in the following activities: athletics, band, orchestra, glee club, debating or oratorical contests, dramatics club, thesis work, inspection trips, and such other University activities as the President or Dean of Faculties may approve.

Resignation. After the date carried in the University Calendar for reporting mid-quarter deficiencies no student may resign from school and escape the penalty of failure. After this date the dean shall contact the student's instructors to determine his scholastic standing at the time of resignation and report such standing to the Registrar. If the student is failing in over half his work he will be charged with one quarter of residence and the number of hours reported as failing.

When a student through illness or physical disability is forced to resign after mid-quarter and when this condition has been the main factor in causing

scholastic deficiencies, discretionary power in determining whether a scholastic penalty is to be assigned shall rest with the student's dean. See "Rules and Regulations for Students" in *The Tiger Cub* for detailed regulations.

English Requirements. All students are expected to maintain a reasonable standard of good usage of English, oral and written. Instructors are directed to insist on correct and accurate speaking and writing in all class work.

Freshmen who, on the basis of scores made on the American College Tests, show lack of adequate preparation for Freshman English, must take special preparatory work before being admitted to English 101. No substitution for the Freshman English requirement is permitted.

Credit in Freshman English Composition earned in another institution may be allowed on transfer, as follows, except that no grade less than "C" will be accepted:

1. If the transferee has less than four and one-half quarter hours credit in Freshman English Composition, no credit is allowed.
2. When the transferee has earned four and one-half quarter hours but less than nine, credit may be allowed for one five-hour course at Auburn, but any hours in excess of five shall not be counted toward graduation. When grades of "C" are made in the first and third quarters, but a grade of less than "C" in the second quarter of a three-quarter course, credit will be allowed for English 101 only.
3. When the transferee has earned nine or more hours and has met the first year English Composition requirement of the other institution, credit may be allowed for both EH 101 and EH 102, provided the minimum of nine hours involves no duplication. A total of 12 hours may be accepted toward the graduation requirement when the 12 hours represent a continuous course sequence at one school. Students entering an undergraduate school at Auburn University after receiving a Bachelor's degree from another accredited college or university are excused from meeting these regulations.
4. No student failing a Freshman English Composition course at Auburn will be permitted to transfer credit from another school to offset that "F," but must repeat the course in residence at Auburn.

PHYSICAL EDUCATION

University Requirements. Physical education is required for six consecutive quarters. Only one credit per quarter is permitted or transferable to meet the six-quarter requirement.

Unless otherwise approved by the student's Dean, each student who lacks physical education must register for an activity course in the first and succeeding quarters of residence until all requirements are met or until he becomes 26 years of age.

Transfer Students. Students transferring from an institution not requiring physical education will have their physical education requirements reduced by the number of full-time quarters (15 hours credit per quarter) in residence at the former institution. Students who transfer from an institution requiring physical education will have their physical education requirements reduced by the number of quarters of physical education completed at the former institution. Students who have not fulfilled the requirements in physical education

at their previous institution will be required to do so at Auburn University before graduation.

Health Classification. A medical examination is required of all students before being admitted to classes. A card stating the physical condition of each student must be filed in the Infirmary and the Department of Health, Physical Education and Recreation before assignment of activities can be approved. Classifications are:

- (A) Regular — This classification permits the student to engage in any activity offered by the Department.
- (B) Adapted — This classification provides for the student with physical limitations which may restrict his participation in the regular program of activities.
- (C) This classification provides for the student with physical limitations requiring program adaptation to his individual needs. The student with this classification will register for Sports Education, PE 105 (no physical activity or very limited).

Military Regulations

RESERVE OFFICERS TRAINING CORPS

Three Military Services — Army, Navy, and Air Force — are represented by ROTC Units at Auburn. Entering freshmen may enroll in the ROTC of their choice at registration, subject to class capacities, except that enrollment in Naval ROTC is by competitive examination prior to registration.

Eligibility for enrollment in the Advanced Course of any ROTC will be subject to departmental policies, criteria, and quota limitations.

Military Training (Basic ROTC). Students enrolling in college for the first time and transfer students not otherwise excused are required to register for and attend scheduled military classes (Basic Course ROTC) in the first and succeeding quarters of residence until military training requirements have been met. Successful completion of the Basic Course (Army, Navy, or Air Force ROTC) is a prerequisite for graduation of all male students except as noted below:

a. Students physically disqualified for military service under current standards prescribed by the Departments of Army, Navy, and Air Force as determined by the respective commandant with the advice of the University physician when his evaluation is appropriate.

b. Veterans with 90 days or more honorable active military service in the U.S. Armed Forces eligible to attend under G.I. Bill of Rights, the Korean War Bill or the Cold War GI Bill. See also paragraph (4) on page 44.

c. Students more than 23 years of age prior to enrolling at Auburn for the first time are excused from Basic military training.

d. Transfer students from institutions not requiring military training will have the basic military requirement reduced by the number of full-time quarters satisfactorily completed in residence at the former institution provided that military training will not be required if the student has completed five full quarters (minimum of 15 hours per quarter). A student who transfers from an institution requiring military training will have his basic military require-

ment reduced by the number of quarters of military training completed at the former institution. A transfer student contemplating advanced ROTC should consult with the head of the service in which he is interested.

e. Students with outstanding records in ROTC training at regularly established Junior ROTC Units, may be excused from the first year Basic Course provided the student applies for excuse and possesses a Certificate of Eligibility from the PMS of the Junior ROTC Unit. In no case will a student in this category be excused from more than the first year Basic Course. If so excused, enrollment in the second year Basic Course will be made at the beginning of the Sophomore year.

f. Students who are not citizens of the United States.

Selective Service Deferments. For regulations concerning Selective Service deferment based on enrollment in ROTC programs, see description carried in this catalog under the particular division: Air Force Aerospace Studies; Military Science; Naval Science.

Military Service Credit. Applicants who have served in the Armed Forces, upon submitting records to the Registrar on the official separation form, may be allowed credit toward advanced standing for service experience as follows:

(1) Courses completed in military service programs at the college level insofar as they fit into the student's curriculum as required subjects or as electives, as approved by the dean concerned.

(2) Officer candidate and special service training not strictly organized as college courses, and other formal or informal off-duty training. Credit may be allowed toward advanced standing by the dean after review by the Registrar and the dean concerned of the official separation record and, as required, after passing with satisfactory scores or grades any field or subject examinations given through the Armed Forces Institute or by the department concerned. Credit for college level General Educational Development Tests is allowed as approved by the dean concerned, except that no credit is allowed in English.

(3) Correspondence courses. Credit may be allowed for college level courses completed by correspondence through the Armed Forces Institute, institutions approved by the Armed Forces Institute, and other accredited institutions as approved by the dean concerned.

(4) Veterans eligible to attend under the G.I. Bill of Rights, the Korean War Bill, or Cold War GI Bill will be excused from Basic ROTC training not previously completed and will be allowed college credit as follows:

Commissioned Officers — 24 Quarter Hours

Others — 6 Quarter Hours

(Duplicate credit is not allowed where ROTC courses have been completed prior to military service.)

Students who have completed a six-month Reserve Active Duty for Training Program (ACDUTRA) resulting in an honorable separation and who have not completed Basic ROTC requirements prior to military service may be given college credit for three quarters (usually the first year) of the ROTC Basic Course. No college credit will be awarded if the Reserve Active Duty for Training Program was less than six months duration; however, the student will be excused from attending three quarters of Basic ROTC training. Other students who have completed terms of military service resulting in an honorable separation, will be given college credit as follows:

For 6 to 12 months — Three quarters of the ROTC Basic Course (three quarter hours) usually taken in the first year.

12 months or more — The entire Basic ROTC Course (6 quarter hours).

Any such student who desires to enroll in the Advanced Course offered by the Departments of Air, Military, or Naval Science shall complete as much of the Basic ROTC Course as may be prescribed as prerequisite by the department concerned.

(5) The Basic ROTC requirement will be waived for successful completion of the training required to become a federally recognized officer in the National Guard of any state. A total of six quarter hours of credit will be allowed, including any Basic ROTC credit earned in residence.

(6) Students who have had active military service may receive credit in physical education as follows: for less than six months, no credit; for six months to one year, one quarter hour in Functional Physical Education, PE 100; for more than one year, six quarter hours (less any completed prior to military service).

Off-Campus Credit

EXTENSION AND CORRESPONDENCE COURSES

The following regulations govern extension and correspondence courses:

(1) Credit for undergraduate courses in extension and/or correspondence in the major subject or for requirements for the baccalaureate degree shall not exceed, including transfer credits so earned, 10 per cent of the total credit required. (2) Credit hours earned by correspondence or extension will be counted as any other credit hours earned toward meeting the requirements for graduation, but will not be included in the calculation for continuation-in-residence. Grade point will be assigned to such work toward meeting the requirements for graduation, but in no case will the number of grade points exceed the number of credit hours so earned. (3) Credit for extension and correspondence courses to be taken at Auburn or elsewhere must be approved in advance by the student's dean. (4) No student in residence may enroll for a correspondence course if he can schedule the course or a suitable substitute. (5) No student shall receive credit for correspondence work which, with courses taken in residence, makes a total load exceeding the maximum allowed under college regulations.

In addition to the above, students taking work under the Auburn University Correspondence Study Program are subject also to its regulations as outlined on page 54. For further information, course listing, and application form request a Correspondence Study Bulletin from the Director, Correspondence Study Program, School of Education, Auburn University.

OFF-CAMPUS CENTER CREDIT

Permission to take work at a university off-campus center is at the discretion of the dean and within the established relationships between the center and the comparable school or college in the parent university of the center. It shall be the responsibility of the student to secure and file with his dean a statement from the center that he may use credit in the desired course toward meeting requirements for the appropriate degree assuming his enrollment at the parent university under comparable classification and circumstances.

Examinations And Grades

GRADING SYSTEM

Final grades are assigned as follows: A, Superior; B, Good; C, Acceptable; D, S, Satisfactory; F, Failure. Grade points are assigned as follows: A—3; B—2; C—1; D—0; F—0. For graduate students see Graduate School section.

A grade of "Incomplete" (IN) is assigned when the quality of work has been of passing grade, but the student has been prevented by illness or other justifiable cause from completing the work required prior to the final examination. If the student is both "Incomplete" in his work and absent from the final examination, the grade of "Absent Examination" (X) shall be assigned. When a grade of "Absent Examination" (X) is reported, the instructor shall indicate whether or not the quality of work has been of passing grade. If passing, a grade of "X" is assigned; if not passing, the grade shall be "XF." Grades of "Incomplete" and "Absent Examination" in required subjects not cleared within one resident quarter shall be repeated. Graduating seniors must clear all incompletes (IN) and absent examination (X) within the first two (2) weeks of their graduating quarter. Graduate students shall remove incomplete grades within a reasonable time and will not be allowed to graduate with grades of "Incomplete" on their records. A student absent from a final examination for any reason other than personal illness must obtain an excuse from the respective Dean in order to take the examination.

A grade of "Withdrawn" (W) will be assigned when the student drops a course with the permission of the dean within the first two weeks of a quarter, or when he is permitted for special reasons to drop the course without penalty after this period. A grade of "Withdrawn Failing" (WF) is assigned to a course dropped with penalty.

If a student is dropped for excessive absences, a grade of "FA" is assigned.

EXAMINATIONS AND REPORTS

Examinations are classified as (1) final examinations at the end of each quarter and (2) special examinations. Grades in all subjects are reported to the students' parents or guardians at the end of each quarter. Fees for special examinations are as follows: If taken at a regularly scheduled period, \$2.00; out of schedule, \$5.00. A student absent from an examination for any reason other than personal illness must obtain an excuse from the respective Dean in order to take the examination. Examinations missed because of illness must be excused by the University Physician.

For detailed regulations governing special examinations, see "Rules and Regulations for Students" in *The Tiger Cub*, the student handbook.

Announced Quizzes. At least two announced one-hour quizzes shall be held in each subject during the quarter, one in the first half of the quarter and the other in the last half. Other quizzes may be given as deemed necessary by the instructor and department head.

Mid-Quarter Deficiencies. Deficiencies are reported at the end of the fifth week in each quarter.

DEAN'S LIST

A full-time student (minimum of 15 quarter hours) passing all credit hours of work carried during a quarter and attaining a scholastic record within the upper five per cent of the records attained by the full-time students enrolled in his school may be designated an honor student for that quarter. The honor attained will be recorded on the Dean's List and on the student's permanent record.

Academic Eligibility

Continued Residence. A student will be suspended for a period of 12 months at the end of any quarter during which he does not earn at least five credit hours. Moreover, a student will be suspended for a period of 12 months if he fails to meet the minimum percentage hours and grade point requirements as determined once each year. At the end of each Spring Quarter a student who has been enrolled at Auburn for a minimum of two quarters must have earned from all work attempted at Auburn, credit hours and grade points equal at least to the following percentage schedules:

From 2 through 4 quarters of college residence at Auburn and elsewhere: 60 per cent.

From 5 through 7 quarters of college residence at Auburn and elsewhere: 70 per cent.

Beyond 7 quarters of college residence at Auburn and elsewhere: 80 per cent.

In determining a student's eligibility for continuation in residence, hours passed and grade points earned will be computed on the basis of credit courses carried, except that a student who passes a remedial course will not be dropped for failure to pass five hours. Credit hours and grade points earned by correspondence or extension will not be included in calculations for continuation in residence.

Any student who has previously been suspended and faces a recurring suspension for failure to meet Continuation-in-Residence requirements, will remain in good standing if in his preceding three quarters he has passed all subjects and has maintained a grade point average of 1.5 on a full load of fifteen hours per quarter.

The post-baccalaureate student enrolled as an undergraduate remains in good standing if he meets the 80 per cent requirement on work taken at Auburn University since graduation; provided, however, that except for failure of the full time student to pass five hours in any quarter, he may not be dropped until he has attempted 30 quarter hours of post-baccalaureate work at Auburn University.

A suspended student may reestablish eligibility to return in any succeeding quarter by attending Auburn the Summer Quarter immediately following the date of suspension and making a 1.0 (C) average on a quarterly load of not less than 15 quarter credits acceptable in his curriculum. A suspended student attempting but failing during a Summer Quarter to reestablish eligibility to continue cannot return before the expiration of his twelve-month suspension period. The effective beginning date of a student's twelve-month suspension period is the end of his last quarter in residence. A suspended student

cannot reestablish eligibility or make progress toward an Auburn degree by earning credits elsewhere or via correspondence during his period of suspension.

Credit hours attempted, credit hours passed, and grade points earned in a Summer or other make-up quarter by a suspended student will be included in determining the eligibility for continuation in residence at the end of the first Spring Quarter after the student re-enters Auburn University. (This does not supersede the minimum five-hour regulation.)

Any work done at another institution by a student while on dropped status shall have no effect on his eligibility for continuation in residence, but a transcript of such work must be filed with the Registrar.

It is the student's responsibility to know his continuation in residence status at all times. **If in doubt about his standing, he should consult his dean.**

When a regular student's load, by voluntary withdrawal from courses or because of excessive absences, has been reduced to less than 10 quarter hours, at the discretion of the dean he may be recommended for suspension for the remainder of the quarter or for the succeeding quarter.

The Council of Deans reserves the right to drop from the rolls any student at any time for flagrant or continuous neglect of his work or failure to make satisfactory grades.

Students enrolled in the School of Veterinary Medicine who make a scholastic average less than 1.25 for any two quarters of one academic year may be dropped from the School of Veterinary Medicine for scholastic deficiency. A student who makes a grade of "F" on any course may be required to withdraw from the School of Veterinary Medicine until the beginning of the quarter in which that course is given during the next academic year, and he may be required to repeat certain other courses in the curriculum for that quarter.

Students who are dropped under the above provisions are eligible for admission to other curricula provided they meet the general scholastic requirements for continuance in college. The scholastic penalties incurred while enrolled in the School of Veterinary Medicine will become a part of the student's record.

Degree Requirements

To qualify for graduation, a student must complete the courses and hours specifically required and accepted for his curriculum with a grade point average of 1.0 (C). A student who transfers from another institution must earn grade points equal in number to the additional hours required for completion of the curriculum. A student transferring from one curriculum to another requiring fewer hours will have his graduation requirements in the new curriculum increased in proportion to the number of quarters completed in the prior curriculum. If courses by correspondence and extension are accepted, the number of grade points allowed will not exceed the number of credit hours so completed.

Not more than 10 quarter hours of the final year's work may be obtained through extension or correspondence courses, or both, unless the student has completed a full load in residence previously for one full session of 36 weeks, in which case credit will be allowed for a total of 18 quarter hours in either extension or correspondence, or a combination of the two. All credit hours

earned by correspondence or extension will be counted as any other credit hours earned toward meeting graduation requirements but will not be included in the calculation for continuation in residence.

Degrees are conferred at Commencement Exercises held at the close of each quarter. A degree will not be conferred in absentia without official permission of the student's dean.

The graduation fee of \$10.00 must be paid at the beginning of the quarter of graduation.

No student will be issued a diploma or statement of credits if he is in default on any payment due the University or any school or division thereof.

Residence Requirement. To obtain a bachelor's degree a student must complete the final year of work at Auburn University. This regulation may be waived, at the discretion of the dean, for men who entered military service from Auburn University and completed work while on active duty. A student must be enrolled in a curriculum at least nine months immediately prior to graduation.

Second Degree. A minimum of 45 quarter hours and 45 grade points and 36 weeks of residence is required for a second baccalaureate degree by a graduate of Auburn University. The minimum requirements for a second baccalaureate degree for a graduate of another institution are completion of the hours required in the final year of the curriculum with an equal number of grade points and 36 weeks of residence at this institution. A minimum of 45 quarter hours and 36 weeks of residence is required for a master's degree.

GRADUATION HONORS

Students clearing graduation requirements with exceptionally high scholastic records who have completed in residence at Auburn University not less than six quarters of the work required in their curricula are graduated with distinction. The distinction attained will be recorded on the student's diploma and placed on his permanent record.

A transfer student who has completed at least six quarters of work in residence at Auburn University is eligible for graduation honors if he meets both of the following requirements: (1) his grade point quotient on all work taken in residence at Auburn University meets the minimum requirements for the honor and (2) his over-all grade point quotient on all work taken in residence at Auburn University and elsewhere meets the minimum requirements for the honor.

A transfer student may not be graduated with a degree of distinction higher than that for which he would be eligible on the basis of his Auburn University record, and where his over-all average is lower than his Auburn University record, the degree of distinction earned will be determined by his over-all grade point quotient.

A student whose record at Auburn University fails to meet the requirements established for one of the degrees of distinction may not be graduated with honors regardless of his record elsewhere.

In determining graduation honors, all work attempted in residence except remedial subjects and subjects cleared with the "S" (satisfactory) grade, will be used in the calculations. Where transfer credits are considered, calculations will be based on the grade point values in use at Auburn University.

The grades of distinction and requirements are: With Honor, a grade point quotient of at least 2.4; With High Honor, a grade point quotient of at least 2.6; and With Highest Honor, a grade point quotient of at least 2.8.

Special Regulations

For complete information regarding all Special Regulations, see "Rules and Regulations for Students" in the Tiger Cub, the student handbook.

AUTOMOBILE REGISTRATION

Registration of four-wheel motor vehicles will be a part of the academic registration procedure at the beginning of the Fall Quarter each year for all undergraduate and graduate students that are permitted to bring cars to Auburn and will be part of the registration procedure at the beginning of the Winter, Spring and Summer Quarters for all students not already registered.

Students who bring unregistered cars, scooters or motorcycles on the campus after any registration period must register them at the University Security Office, Department of Buildings and Grounds, immediately after arrival on the campus. Faculty and staff members shall register their cars at the University Security Office. Failure to register a four-wheel vehicle, to use the proper decal and to park in the proper zone will constitute a violation and subject the violator to certain penalties.

Freshmen are not permitted to bring cars to the Auburn community unless required for commuting. Generally, those staying or living one-half mile or further beyond the edge of the main campus will be considered commuters.

Junior, Sophomore and Freshman commuters must register for zone "D" and are not permitted to park or operate a vehicle on the main campus during normal school hours. For specific information regarding designated parking areas, traffic regulations and controls, violations and penalties, secure a copy of the "Parking and Traffic Regulations" from the University Security Office.

DISCIPLINE

1. Each student, by act of registration, obligates himself to obey all rules and regulations.

2. Students are expected to conduct themselves along the lines of good citizenship by obeying the laws of the United States, the State of Alabama, the City of Auburn, and the University. Enrollment as a student in no way exempts any person from penalty in case of violation of local, state, or national laws. (See Student Handbook for detailed regulations relative to discipline.)

3. All publications supported by the Student Activities Fee are subject to supervision by the Board of Student Publications.

The Academic Program

Purposes of Auburn University

To maintain a community of learning where knowledge may be preserved, disseminated, and increased. (This is the fundamental purpose of all universities. To the extent that it fulfills this basic purpose of a university, Auburn University will fulfill its several particular purposes which are listed below.)

To provide the opportunity to all qualified young people of the State, regardless of their economic or social background, for a "liberal and practical education."

To provide the State, the region, and the nation with educated young people who have the disciplined minds, the knowledge, and the skills to contribute needed leadership and services to society and who will help perpetuate the moral and political values upon which our society is based.

To conduct a broad program of public and private research, basic and applied, for the general increase of human knowledge, for the benefit of society in meeting its scientific, economic and social problems, and for the stimulation of the faculty and students in their quest for knowledge.

To carry knowledge and its benefits to the people of the State by means of extension programs and the use of the mass media of communications in order to help all citizens improve their technical and cultural capabilities.

To conserve our cultural heritage through support of scholarly and creative work in the humanities, social sciences, and the arts so that the University may serve both students and citizens of the State as a focal center where the cultural traditions of our civilization are kept alive and transmitted to the future.

To engage constantly in an examination of the particular objectives, goals and programs of the University in the light of new knowledge and of changing social conditions; and as a part of this constant re-examination, to seek ever more efficient and economical means of fulfilling the University's purposes.

Fields of Study

Auburn University offers work in many fields. The student has an opportunity for specialization and the pursuit of particular interests in the several Schools including the Graduate School.

For instructional purposes, the University is organized into the following Schools: Agriculture, Air Force Aerospace Studies, Architecture and the Arts, Chemistry, Education, Engineering, Home Economics, Military Science, Naval Science, Pharmacy, Science and Literature, Veterinary Medicine, and the Graduate School.

Instruction is given in each School through four quarters of approximately 11 weeks each, with the fourth quarter serving as the summer session.

Resident instruction in the University is offered through Schools and Departments as indicated below. Regular curricula offered and degrees conferred by the several Schools are also listed.

School of Agriculture, includes the Departments of Agricultural Economics, Agricultural Engineering, Agronomy and Soils, Animal Science, Botany and Plant Pathology, Dairy Science, Forestry, Horticulture, Poultry Science, and Zoology-Entomology. Curricula offered are: *Agricultural Science, Agricultural Administration, Agricultural Engineering, Biological Sciences, Forest Management, Ornamental Horticulture and Wood Technology*. Within each curriculum students are permitted to major in line with their special interests.

Degrees: Bachelor of Science in Agriculture, Agricultural Business and Economics, Agricultural Engineering, Biological Sciences (Botany, Entomology, Fisheries Management, Wildlife Management, Zoology), Food Science, Forestry, Ornamental Horticulture, Wood Technology.

School of Air Force Aerospace Studies, includes the Department of Air Force Aerospace Studies and offers training in Aerospace Studies.

School of Architecture and The Arts, includes the Departments of Architecture, Art, Building Technology, Drama, and Music. Curricula offered are: *Architecture, Building Construction, Drama, Fine Arts, Industrial Design, Interior Design, Music (Majors in Applied Music, Church Organ Music, Music History and Literature, Theory and Composition), and Visual Design*.

Degrees: Bachelor of Architecture, Arts, Building Construction, Fine Arts, Industrial Design, Interior Design, Music.

School of Chemistry, includes the Departments of Chemistry, Chemical Engineering, and Laboratory Technology. Curricula offered are: *Chemistry, Chemical Engineering, and Laboratory Technology*.

Degrees: Bachelor of Science in Chemistry, Chemical Engineering, Laboratory Technology, Medical Technology.

School of Education, includes the Departments of Elementary Education; Foundations of Education; Secondary Education; Administration, Supervision, and Guidance; Health, Physical Education and Recreation; Vocational, Technical and Practical Arts Education; and Psychology. Undergraduate curricula offered are: *Elementary Education, Secondary Education (majors or minors in Art; Business Education; Drama; English; Health, Physical Education and Recreation; Vocational Home Economics; Mathematics; Mental Retardation; Modern Languages; Music; School Library Science; Science; Social Science; Speech; and Speech Correction); Vocational, Technical, and Practical Arts Education (majors in Agricultural Education, Basic Vocational Education, Distributive Education, and Trades and Industrial Education); and Psychology*.

Degrees: Bachelor of Arts and Bachelor of Science in Education.

School of Engineering, includes the Departments of Pre-Engineering, Aerospace Engineering, Aviation Management, Civil Engineering, Electrical Engineering, Engineering Graphics, Industrial Laboratories, Industrial Engineering, Mechanical Engineering, Textile Engineering, and Auburn School of Aviation. This School offers curricula in *Aerospace Engineering, Aviation Management, Civil Engineering, Electrical Engineering, Industrial Engineering, Mechanical Engineering, Metallurgical Engineering, Textile Chemistry, Textile Engineering, and Textile Management*.

Degrees: Bachelor of Aerospace Engineering, Aviation Management, Civil Engineering, Electrical Engineering, Industrial Engineering, Mechanical Engineering, Metallurgical Engineering, Textile Chemistry, Textile Engineering, and Textile Management.

School of Home Economics, includes the Departments of Clothing and Textiles, Family Life and Early Childhood Education, Foods and Nutrition, and Home Management and Family Economics. Curricula offered are: *Home Economics (majors in Clothing and Textiles, Foods and Nutrition, Home Management and Family Economics, Family Life and Early Childhood Education, Institutional Food Management), and Pre-Nursing Science.*

Degrees: Bachelor of Science in Home Economics (Clothing and Textiles, Foods and Nutrition, Home Management and Family Economics, Family Life and Early Childhood Education, Institutional Food Management), and Bachelor of Science in Nursing.

School of Military Science, includes the Department of Military Science and offers training in Military Science.

School of Naval Science, includes the Department of Naval Science and offers training in Naval Science.

School of Pharmacy, includes the Departments of Pharmacy, Pharmaceutical Chemistry, Pharmacology, Pharmacognosy, Pharmacy Administration, and offers a curriculum in *Pharmacy*.

Degree: Bachelor of Science in Pharmacy.

School of Science and Literature, includes the Departments of Economics and Sociology, English and Journalism, Foreign Languages, History and Political Science, Mathematics, Philosophy, Physics, Religious Education, Speech, and Secretarial Training. Curricula offered are: *Science and Literature (majors in liberal arts and the sciences); Pre-Law, Business Administration, Secretarial Administration, Mathematics, Applied Physics, Physics, and Pre-Professional Science (Pre-Medicine, Pre-Dentistry, and Pre-Veterinary Medicine).*

Degrees: Bachelor of Arts, Bachelor of Science, Bachelor of Science in Business Administration.

School of Veterinary Medicine, includes the Departments of Anatomy and Histology, Microbiology, Pathology and Parasitology, Physiology and Pharmacology, Large Animal Surgery and Medicine, and Small Animal Surgery and Medicine, and offers a curriculum in *Veterinary Medicine*.

Degree: Doctor of Veterinary Medicine.

The Graduate School, administers programs leading to the degrees of Master of Arts, Master of Science, Master of Agriculture, Master of Fine Arts, Master of Building Construction, Master of Business Administration, Master of Education, and Master of Home Economics. Beyond the Master's degree, programs are offered leading to the degrees of Specialist in Education, Doctor of Education, and Doctor of Philosophy.

Library Facilities

The Ralph Brown Draughon Library, opened in January, 1963, has a study capacity for 2,000 students and room for one million volumes. Spacious reading rooms are separated by glass walls, giving a panoramic view of each floor, with fluorescent lights, contemporary furniture, and open book stacks aiding the student in his study.

The Library also contains 98 closed carrels for the use of faculty members and graduate students engaged in library research, a special microfilm reading

room, seven rooms for listening to recordings and a projection room with 108 theatre seats where special educational films may be viewed. The building is completely air-conditioned and contains the only public elevators on the campus.

On December 1, 1966, the Library contained 475,000 volumes and more than 400,000 publications of federal and state governments. Materials issued by the various branches of the federal government, the Atomic Energy Commission, and the National Aeronautics and Space Administration are received on depository account.

Agricultural and engineering experiment station bulletins are available. Quantities of books, dissertations, and documents are received on microfilm and microcards, as well as important newspapers and periodicals. More than 8,600 serials are being received currently; back files are available for a large portion of these titles.

A number of special collections are maintained in the Library. Some of these are the George Petrie Memorial Collection, presented by Miss Kate Lane; the Flagg Architecture Library, given by the Alabama Institute of Architects; the Hodson Collection on the History of Agriculture, presented by Mr. Edgar A. Hodson, Arkansas State Agronomist; the personal library of the late Mrs. B. B. Ross; an excellent sports collection, donated by Mr. C. W. (Bill) Streit; and many others. The Library also contains a collection of documents and publications in Alabama history and government.

Borrowing privileges are extended to the members of the administrative, research, instruction, and extension staffs of the University, also to governmental departments and agencies located in Auburn. Loan privileges are also extended to all citizens of the State by inter-library loan requests through their local libraries; to all students in residence; and to members of the Auburn Research Foundation.

Books for reserve use by the various classes are located in the Reserve Book Department on the first level. There is also a large reserve reading room, a general reading room, the Special Collections Department, a projection room and a browsing room on this floor. Popular and contemporary books, magazines and newspapers are available here. Housed on the second floor are the Humanities Division, the bibliography area, the Technical Services area, the Circulation Division, and the Administrative Offices. The third floor is devoted entirely to the Social Sciences, and the fourth floor is used for the Biological and Physical Sciences.

Branch libraries on campus are the Architecture Library and the Pharmacy-Veterinary Library. Hours of service vary in the branch libraries.

The Department of Archives, organized in 1964, is located on the first floor. It accumulates and makes available the University archives, manuscripts, letters, notebooks, articles, papers and other materials of or by the various staffs of the institution; also similar materials dealing with the State of Alabama and the South in general. The Department of Archives is not open all hours the Library is open; patrons and visitors may call the Library or the Department for information.

Correspondence Study Program

The Correspondence Study Program provides undergraduate instruction for persons unable to attend college on a regular basis. Correspondence courses

parallel those given in the University and are taught by members of the University faculty. All courses carry college credit.

Organization of Courses — A complete course outline with full information and instructions is sent to the student upon registration. Courses consist of varying amounts of credit and numbers of units. Each work unit requires certain textbook readings and written preparation. Supplementary reading and reports may be required of the student by the instructor on any assignment. Written work is submitted to the Correspondence Study Office.

Qualifications — Any person who might profit from college level courses is eligible to enroll. No entrance examination is required for admission to correspondence study, but the right is reserved to reject any applicant who does not furnish complete or satisfactory data on the formal application. Enrollment for correspondence study does not constitute admission to Auburn University.

Restrictions placed on Auburn University students regarding correspondence work are described in the regulations in Section III of the Correspondence Study Bulletin. The use of correspondence work in regular programs at Auburn University is explained on page 45 of this Bulletin.

Credit — Undergraduate credit equivalent to that earned in regular college classes is given for correspondence work. Although graduate credit cannot be earned by correspondence, certain undergraduate deficiencies may be cleared.

Examinations — A final examination is required in each course upon completion of all unit work. The examination should be taken in the Correspondence Study Office but may, on approval, be taken elsewhere under the supervision of an approved proctor. Proctors approved are city or county superintendents of schools, principals of accredited senior high schools, and/or deans and department heads of colleges. Students in military service may arrange to take the examination under the supervision of the Education Officer of their station.

Fees — Fees for correspondence courses are listed in the catalog under "Fees and Charges" (see page 28). Fees are payable in advance and should accompany the application.

For application form and further information write to Director, Auburn University Correspondence Study Program.

School of Agriculture

E. V. SMITH, *Dean*

CHARLES F. SIMMONS, *Associate Dean*

R. D. ROUSE, *Assistant Dean*

THE SCHOOL OF AGRICULTURE prepares students for careers in agriculture and related professions. Courses provide a broad foundation in the basic sciences, a general knowledge of the applied sciences, and a reasonable number of cultural subjects. Most of the basic science courses are given in the freshman and sophomore years and serve as a basis for a better understanding of the applied or more practical subjects which are usually taken in the junior and senior years.

A curriculum is offered in Agricultural Science with majors in Agronomy and Soils, Animal Science, Dairy Science, Poultry Science, Horticulture, and Agricultural Journalism. Other curricula are offered in Agricultural Business and Economics, Agricultural Engineering, Biological Sciences, Food Science, Forest Management, Ornamental Horticulture, and Wood Technology. Within these curricula majors are permitted in line with the student's special interest. If a student is permitted to major in a field where the courses are not prescribed in the catalog he should consult with the head of the department concerned.

The School of Agriculture also furnishes the subject matter training in Agriculture for the curriculum for training teachers of Vocational Agriculture.

Transfer credit will not normally be allowed for any course passed with a grade lower than C at any other college or university.

Credit will not be allowed for agricultural subjects taken at non-land-grant colleges unless the student passes validating examinations in such subjects after entering Auburn. Arrangements for these examinations must be made with the Dean of Agriculture in the first quarter of the student's enrollment in the School of Agriculture at Auburn and the examinations must be completed before the middle of the second quarter.

Curriculum in Agricultural Science (AG)

FRESHMAN YEAR

FIRST QUARTER			SECOND QUARTER			THIRD QUARTER		
CH 103	Gen. Chemistry	.....4	CH 104	Gen. Chemistry	.....4	EH 102	English Comp.	.....5
CH 103L	Gen. Chem. Lab.	...1	CH 104L	Gen. Chem. Lab.	...1	*MH 161	Anal. Geo. and	
HY 107	United States		EH 101	English Comp.	.....5		Calculus	.....5
	History	.....5	ZY 101	Gen. Zoology	.....5	ZY 102	Gen. Zoology	.....5
*MH 160	Alg. and Trig.	.....5	MS	Military Training	...1	MS	Military Training	...1
MS	Military Training	...1	PE	Physical Education	...1	PE	Physical Education	...1
PE	Physical Education	...1						

* The beginning mathematics requirements in all curricula of the School of Agriculture are MH 160 Algebra and Trigonometry and MH 161 Analytic Geometry and Calculus. Except in the Agricultural Engineering, Forestry, and Wood Technology curricula which require mathematics beyond MH 161, the sequence of courses, MH 121 and MH 122 College Mathematics may be substituted for the sequence MH 160 and MH 161 if approved in advance by the student's adviser and dean.

SOPHOMORE YEAR

FIRST QUARTER

AH 200	Intr. An. Husb.	5
BY 101	General Botany	5
PS 204	Physics	5
MS	Military Training	1
PE	Physical Education	1

SECOND QUARTER

AS 202	Agr. Economics	5
BY 102	General Botany	5
CH 105	Gen. Chemistry	3
CH 105L	Gen. Chem. Lab.	2
	or	
CH 207	Organic Chemistry	5
MS	Military Training	1
PE	Physical Education	1

THIRD QUARTER

AF 204	Animal Biochemistry and Nutrition	5
AY 201	Grain Crops	5
HF 201	Orchard Mgt.	5
MS	Military Training	1
PE	Physical Education	1

JUNIOR YEAR

PH 301	General Poultry	5
SP 210	Public Speaking	3
JM 315	Agr. Journalism	3
	*Agr. Engr. Electives	5
	Elective	3

BY 306	Plant Physiology	5
BY 309	Plant Pathology	5
DH 200	Fund. of Dairying	5
	Elective	3

AY 304	General Soils	5
HF 308	Vegetable Gard.	5
	*Agr. Engr. Elective	5
	Elective	3

SENIOR YEAR

AY 401	Forage Crops	5
FY 313	Farm Forestry	5
	Elective	5
	Elective	3

AS 301	Agr. Marketing	5
AY 404	Cotton Production	5
	Elective	5
	Elective	3

AH 401	Swine Production	5
AS 401	Farm Management	5
ZY 402	Econ. Entomology	5
	Elective	3

Total—211 quarter hours

* To be selected from AN 350, 351, 352 and 353.

Major in Agronomy and Soils

FRESHMAN YEAR

(Same as in Agricultural Science except Botany 101 will be substituted for Zoology 102)

SOPHOMORE YEAR

FIRST QUARTER

AY 201	Grain Crops	5
BY 102	General Botany	5
CH 203	Organic Chemistry	5
MS	Military Training	1
PE	Physical Education	1

SECOND QUARTER

AH 204	Animal Biochemistry and Nutrition	5
CH 105	General Chemistry	3
CH 105L	Gen. Chem. Lab.	2
PS 204	Physics	5
MS	Military Training	1
PE	Physical Education	1

THIRD QUARTER

AH 200	Introductory Animal Husbandry	5
AY 304	General Soils	5
DH 200	Fund. of Dairying	5
MS	Military Training	1
PE	Physical Education	1

JUNIOR YEAR

AN 350	Soil & Water Technology	5
AS 202	Agr. Economics	5
BY 306	Fundamentals of Plant Physiology	5
	Elective	3

AY 406	Com. Fertilizers	3
HF 308	Vegetable Crops	5
PH 301	General Poultry	5
SP 210	Public Speaking	3
	Elective	3

AY 306	Soil Morphology & Survey	5
JM 315	Agr. Journalism	3
	*Electives	11

SENIOR YEAR

AS 401	Farm Management	5
AY 401	Forage Crops	5
FY 313	Farm Forestry	5
	Elective	3

AY 404	Cotton Production	5
BY 309	Plant Pathology	5
	Electives	8

AY 402	Soil Fertility	5
ZY 402	Econ. Entomology	5
ZY 300	Genetics	5
	Elective	3

Total—212 quarter hours

* The student must take at least 5 hours from AN 351, 352, 353, and 354.

Students planning to major in Agronomy and Soils should contact the Head of the Department and be assigned an adviser. Electives will be selected with approval of the adviser and the Dean in line with the student's interests and needs. Students desiring further training may plan their course of study so as to be prepared for graduate work at this or other institutions.

Major in Animal Science

FRESHMAN YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
AH 200	Intr. An. Husb. ....5	CH 104	Gen. Chemistry .....4	CH 105	Gen. Chemistry .....3
CH 103	Gen. Chemistry .....4	CH 104L	Gen. Chem. Lab. ..1	CH 105L	Gen. Chem. Lab. ..2
CH 103L	Gen. Chem. Lab. ..1	EH 101	English Comp. ....5	EH 102	English Comp. ....5
MH 160	Alg. and Trig. ....5	MH 161	Anal. Geom. and Calculus .....5	ZY 101	Gen. Zoology .....5
MS	Military Training ....1	MS	Military Training ....1	MS	Military Training ....1
PE	Physical Education ..1	PE	Physical Education ..1	PE	Physical Education ..1

SOPHOMORE YEAR

CH 203	Organic Chem. or	BY 101	Gen. Botany .....5	AH 204	Animal Biochemistry & Nutrition .....5
CH 207	Organic Chemistry ..5	VM 200	Gen. Microbiology ..5	AS 202	Agr. Economics .....5
PO 206	United States Govt. ..5	JM 315	Agri. Journalism ....3	AY 304	General Soils .....5
ZY 102	Gen. Zoology .....5	SP 210	Public Speaking ....3	MS	Military Training ....1
MS	Military Training ....1	PE	Physical Education ..1	PE	Physical Education ..1

JUNIOR YEAR

ZY 300	Genetics .....5	AH 403	Animal Breeding .....5	VM 422	Animal Diseases .....5
Electives	.....13	VM 421	Animal Physiology ..5	ZY 402	Economic Ento. ....5
			Electives .....8		Electives .....8

SENIOR YEAR

Electives	.....18	AH 411	Seminar .....1	Electives	.....18
		AS 401	Farm Management ..5		
			Electives .....13		

Total—212 quarter hours

Students desiring to major in Animal Science will be assigned an adviser. A major may elect either a Terminal Degree Option or a Graduate Preparatory Option and will during his sophomore year with the assistance and approval of his adviser, develop a plan of study for the junior and senior years from lists of approved elective courses. As approved by the Dean of Agriculture and the student's adviser, substitutions may be permitted to meet specific needs of individual students.

Major in Dairy Science

FRESHMAN YEAR

(Same as in Agricultural Science)

SOPHOMORE YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
CH 105	General Chemistry ..3	AS 202	Agr. Economics .....5	AH 204	Animal Biochemistry and Nutrition .....5
CH 105L	Gen. Chem. Lab. ..2	BY 101	General Botany .....5	AY 201	Grain Crops .....5
DH 200	Fund. of Dairying ..5	CH 203	or 207 Organic Chemistry* .....5	**Agr. Engr. Elective ..5	
PS 204	Physics .....5	MS	Military Training ....1	MS	Military Training ....1
LY 101	Use of the Library ..1	PE	Physical Education ..1	PE	Physical Education ..1
MS	Military Training ....1				
PE	Physical Education ..1				

JUNIOR YEAR

AY 304	General Soils .....5	AY 401	Forage Crops .....5	EH 345	Bus. & Prof. Writing ..5
VM 200	Gen. Microbiology ..5	DH 410	Food Microbiology ..5	VM 422	Animal Disease Control .....5
DH 314	D. C. Judging .....3	VM 421	Animal Physiology ..5	ZY 300	Genetics .....5
JM 315	Agr. Journalism ....3	SP 210	Pub. Speaking*** ..3		Elective .....3
	Elective .....3				

SENIOR YEAR

DH 408	Processing Dairy Products .....5	AH 403	Animal Breeding .....5	AS 401	Farm Management ..5
DH 317	Dairy Cattle Feed- ing & Mgt. ....5	PH 301	General Poultry .....5	DH 403	Dairy Farm Prac. ....5
**Agr. Engr. Elective ..5		DH 402	Artificial Insemination .....3	ZY 402	Econ. Entomology ..5
Elective .....3			Elective**** .....5		Elective .....3

Total—212 quarter hours

Students majoring in Dairy Production shall have at least one quarter or one summer practical dairy farm experience before graduation.

* If graduate study is planned, CH 207 is recommended, with CH 208 also to be taken as an elective.

** To be selected from AN 350, 351, 352, and 353.

*** Students taking Advanced ROTC may substitute one 3-hour Advanced ROTC course for SP 210.

**** If graduate study is planned, CH 206 and CH 206L Quantitative Analysis should be taken.

Major in Horticulture

FRESHMAN YEAR

(Same as in Agricultural Science except Botany 101 will be substituted for Zoology 102)

SOPHOMORE YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
BY 102	General Botany .....5	AS 202	Agr. Economics .....5	AH 204	Animal Biochemistry and Nutrition .....5
HF 201	Orchard Mgt. ....5	CH 105	General Chemistry 3	*AN 351	Agr. Mach. Tech. ...5
PS 204	Physics .....5	CH 105L	Gen. Chem. Lab. ...2	HF 221	Landscape Gardening .....5
MS	Military Training ...1	or		MS	Military Training ...1
PE	Physical Education ..1	CH 207	Organic Chemistry ...5	PE	Physical Education ..1
		HF 224	Plant Propagation ...5		
		MS	Military Training ...1		
		PE	Physical Education ..1		

JUNIOR YEAR

AY 304	General Soils .....5	AS 301	Agr. Marketing .....5	AN 350	Soil and Water Technology .....5
PH 301	General Poultry .....5	BY 306	Plant Physiology .....5	AY 402	Soil Fertility .....5
JM 315	Agr. Journalism .....3	HF 308	Vegetable Crops .....5	HF 402	Storage, Packaging and Marketing Veg. Crops .....3
SP 210	Public Speaking .....3		Elective .....3		Elective .....5
	Elective .....3				

SENIOR YEAR

AS 401	Farm Management 5	BY 309	Plant Pathology .....5	HF 405	Small Fruits .....5
HF 401	Commercial Veg. Crops .....3	HF 404	Fruit Growing .....5	ZY 402	Economic Ento. ....5
HF 323	Floriculture or		Electives .....8		Electives .....8
HF 406	Nut Culture .....5				
	Elective .....5				

Total—211 quarter hours

Electives will be chosen with the approval of the student's adviser and dean.

* AN 352, AN 353 or AN 354 may be substituted.

Major in Poultry Science

FRESHMAN YEAR

(Same as in Agricultural Science)

SOPHOMORE YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
AS 202	Agr. Economics .....5	EC 212	Intr. Accounting .....5	AH 204	Animal Biochemistry and Nutrition .....5
BY 101	General Botany .....5	PH 301	General Poultry .....5	GY 103	Economic Geog. ....5
EC 211	Intr. Accounting .....5	PS 204	Physics .....5	ZY 300	Genetics .....5
MS	Military Training ...1	MS	Military Training ...1	MS	Military Training ...1
PE	Physical Education ..1	PE	Physical Education ..1	PE	Physical Education ..1

JUNIOR YEAR

EC 341	Business Law .....5	AS 301	Agr. Marketing .....5	AS 361	Rural Sociology .....5
SP 211	Public Speaking .....5	SY 201	Intr. to Sociology .....5	EH 345	Bus. & Prof. ....5
JM 315	Agr. Journalism .....3	VM 311	Gen. Bacteriology ...5		Writing .....5
	Elective .....6		Elective .....3	PG 211	Gen. Psychology ....5
					Elective .....3

SENIOR YEAR

EC 333	Salesmanship .....3	PH 408	Poultry Diseases .....5	AS 401	Farm Management ..5
ZY 411	General Parasitology or	AN 353	Farm Building Tech. 5	PH 404	Poultry Management 5
		AS 304	Agr. Finance .....3	PH 410	Poultry Breeding ...3
ZY 402	Econ. Entomology ...5		Elective .....6	PH 411	Poultry Marketing ...3
PH 302	Poultry Meat Prod. 3				Elective .....3
PH 405	Poultry Feeding .....3				
	Elective .....3				

Total—212 quarter hours

Electives to be approved by student's adviser and dean.

Agricultural Business and Economics

The curriculum in Agricultural Business and Economics is for both those students who plan a career in businesses closely related to agriculture, and for those interested in the economics of agricultural production and marketing and in public policies affecting agriculture. The curriculum is administered through a faculty advisory system wherein individual student programs of study are developed in accordance with individual student needs and interests. The need for broad training, rather than narrow specialization, is emphasized.

The curriculum not only combines both business and technical agricultural courses, but through selection of electives it provides an opportunity for students to emphasize training in agribusiness, in agricultural economics, in humanities, or in selected production fields. The curriculum leads to a degree of Bachelor of Science in Agricultural Business and Economics.

The demand for graduates who have both business and applied agricultural training is increasing. In both public and private agencies, increasing attention to rural economic and social problems points to enlarged opportunities for qualified workers in teaching, research, sales, public relations, services, administration, and private employment in these fields. By properly selecting electives, students may prepare themselves to become (1) owners or managers of firms that produce, process, or market agricultural products; (2) teachers, research workers, or educational workers in the field; (3) public officials in the capacity of farm management or marketing specialists, commodity analysts, market news reporters, inspectors, credit analysts, etc.; or (4) employees of business firms that handle agricultural products or that service agricultural production and marketing firms.

Curriculum in Agricultural Business and Economics (AS)

FRESHMAN YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
EH 101	English Comp. ....5	EH 102	English Comp. ....5	BY 101	Gen. Botany ....5
MH 160	Algebra & Trig. ....5	CH 103	Gen. Chemistry ....4	CH 104	Gen. Chemistry ....4
ZY 101	Gen. Zoology ....5	CH 103L	Gen. Chem. Lab. ....1	CH 104L	Gen. Chem. Lab. ....1
MS	Military Training ....1	MH 161	Anal. Geo. & Cal. ....5	HY 107	U.S. History ....5
PE	Physical Education ....1	AS 102	Agr. Econ. Orien. ....0	LY 101	Use of Library ....1
		MS	Military Training ....1	MS	Military Training ....1
		PE	Physical Education ....1	PE	Physical Education1

SOPHOMORE YEAR

AH 204	Animal Biochemistry and Nutrition ....5	EC 212	Intr. Accounting ....5	EC 341	Business Law ....5
AS 202	Agr. Economics ....5	DH 200	Fund. of Dairy or ....5	EC 245	Statistics ....5
EC 211	Intr. Accounting ....5	PH 301	Gen. Poultry ....5	PO 206	U.S. Govt. ....5
MS	Military Training ....1	PS 204	Physics ....5	MS	Military Training ....1
PE	Physical Education ....1	MS	Military Training ....1	PE	Physical Education1

JUNIOR YEAR

AH 303	Livestock Prod. ....5	AS 301	Agr. Marketing ....5	AN 351	Farm Machinery Tech. or* ....5
AY 307	General Soils ....5	AS 361	Rural Sociology ....5	EH 345	Bus. & Prof. Writ. ....5
EC 360	Money & Banking ....5	SP 210	Public Speaking ....3		Elective ....8
	Elective ....3		Electives6		

SENIOR YEAR

EC 446	Business Cycles ....5	AY 401	Forage Crops or ....5	AS 401	Farm Mgt. ....5
AS 410	Agr. Bus. Mgt. ....3	AY 201	Grain Crops ....5	AS 405	Agr. Policy ....3
	Electives ....10	FY 313	Farm Forestry ....5		Electives ....10
		AS 403	Agr. Prices ....3		
		AS 490	Senior Seminar ....1		
			Elective ....3		

Total—211 quarter hours

GROUP 1		GROUP 2		GROUP 3	
AH 302	Feeds & Feeding ...3	AS 302	Farm Records .....3	AS 441	History & Philosophy of Extension .....3
AH 304	Meats .....3	AS 303	Agricultural Coop. ...3	AS 462	Rural Communities Around the World ...3
AH 401	Swine Production ...5	AS 304	Agr. Finance .....3	IE 314	Elec. Data Processing Mach. ....3
AH 402	Beef Cattle Prod. ...5	AS 305	Farm Appraisal .....3	PA 301	Philosophy .....3
AN 350	Soil & Water Tech. 5	AS 411	Econ. Development 3	PA 302	Ethics .....3
AN 351	Agr. Machinery Tech. ....5	AS 412	Economic Aspects of Water .....5	PA 308	Introduction to Logic or .....3
AN 352	Tractor & Engine Tech. ....5	AS 460	Intr. to Econometrics .....3	PA 307	Scientific Rn'g. ....5
AN 353	Farm Bldg. Tech. ...5	EC 333	Salesmanship .....5	PC 211	General Psychology 5
AN 354	Agr. Proces. Tech. ...5	EC 451	Intr. Ec. Theory ...5	PG 330	Social Psychology .4
AY 404	Cotton Production ...5	EC 452	Comp. Econ. Systems .....5	PG 360	Applied Psychology 5
AY 406	Comm. Fert. ....3	EC 463	Corporate Finance ...5	PO 407	Political Sci. ....5
AY 407	Soil Management ...5	EC 464	Investments .....5	SY 203	Cultural Anthropology .....5
HF 401	Comm. Veg. Crops 3	EC 465	Public Finance .....5	SY 311	Tech. & Soc. Chg. ...3
HF 404	Fruit Growing .....5	EC 474	Adv. Statistics .....5	SY 408	Indus. Socio. ....5
				ZY 204	Insects .....3
				ZY 206	Conservation .....3
				ZY 300	Genetics .....5
				ZY 402	Econ. Entomology ...5

Students desiring to major in Agricultural Business and Economics should contact the Head of the Department of Agricultural Economics and Rural Sociology as early in their college careers as possible in order that they may be assigned to a faculty adviser. Electives will be selected in consultation with faculty advisers based on student needs and interests.

Agricultural Engineering

This technical field trains engineers in the agricultural areas. The curriculum includes courses basic to all types of engineering, courses with particular emphasis on engineering problems in agriculture, and general agricultural courses. The curriculum leads to a degree of Bachelor of Science in Agricultural Engineering. Students completing the curriculum have opportunities in many types of work where both engineering and agricultural knowledge are required.

The Agricultural Engineering curriculum is accredited by the Engineers' Council for Professional Development.

Curriculum in Agricultural Engineering (AN)

FRESHMAN YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
EH 101	English Comp. ....5	CH 103	Gen. Chemistry .....4	BY 101	Gen. Botany .....5
MH 160	Algebra and Trig. ...5	CH 103L	Gen. Chem. Lab. ...1	CH 104	Gen. Chemistry .....4
ZY 101	General Zoology .....5	EH 102	English Comp. ....5	CH 104L	Gen. Chem. Lab. ...1
EG 102	Engr. Drawing I ...2	MH 161	Anal. Geo. & Cal. 5	MH 162	Anal. Geo. & Cal. 5
MS	Military Training ...1	LY 101	Use of Library .....1	EG 104	Des. Geom. ....2
PE	Physical Education ...1	AN 101	Engineering & Agr. 1	AN 102	Agr. Engr. Prof. ....1
		MS	Military Training ...1	MS	Military Training ...1
		PE	Physical Education ...1	PE	Physical Education ...1

SOPHOMORE YEAR

AN 201	Soil & Implement Mechanics .....3	ME 205	Applied Mechanics 4	MH 361	Diff. Equations .....5
MH 263	Anal. Geom. & Cal. 5	MH 264	Anal. Geom. & Cal. 5	PS 203	Gen. Physics—Electromagnetism & Light .....5
PS 201	Gen. Physics—Mechanics .....5	PS 202	Gen. Physics—Sound, Heat and Electricity .....5	ME 208	Strength of Mat. ....4
PA 202	Ethics & Society ...5	CE 210	Engr. Surveying ...3	AN 205	Agr. Engr. Design ...2
MS	Military Training ...1	MS	Military Training ...1	MS	Military Training ...1
PE	Physical Education ...1	PE	Physical Education ...1	PE	Physical Education ...1

JUNIOR YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
AN 407	Agr. Mech. Design Analysis .....5	ME 307	Applied Mech. Dynam. ....5	AY 307	Gen. Soils .....5
EE 304	Electrical Circuits .4	ME 310	Thermodynamics .....5	AS 202	Agr. Economics .....5
AN 302	Agr. Structures Des. I .....3	AN 307	Physical Properties of Agricultural Materials .....3	CE 308	Hydraulics I .....3
EH 304	Technical Writing .3	AN 309	Electrical Systems in Agriculture .....3		Agriculture Elective 5
	Humanistic or Social Elective .....5	HY 204	History of Modern World .....3		

SENIOR YEAR

AN 414	Envir. Animal Phys. and Bio-Engr. ....5	AN 401	Mech. of Tractor Power .....5	AN 405	Irrigation Design ....5
AN 403	Soil & Water Engr. 5	AN 416	Agr. Structures Des. II .....3	AN 408	Agr. Tractor Design Analysis .....3
EE 305	Elect. & Instrum. .5	AN 409	Agr. Processing .....3	SP 210	Public Speaking .....3
	Agriculture Elective 5		Humanistic or Social Elective .....3		Humanistic or Social Elective .....8
		CE 309	Hydraulics II .....3		
Total—228 quarter hours					

ELECTIVES

Courses used for electives must be selected from the list of humanistic-social electives below, subject to approval of the Department Head.

Six hours of Advanced ROTC may be substituted for SP 210 Public Speaking and EH 304 Technical Writing.

Requirements for agricultural electives may be met by taking ten hours from the following: AY 455 Soil Physics, BY 401 Experimental Statistics for Biological Sciences, BY 306 Fundamentals of Plant Physiology, AS 401 Farm Management, ZY 402 Economic Entomology, AY 402 Soil Fertility, AH 204 Animal Biochemistry and Nutrition.

APPROVED HUMANISTIC-SOCIAL ELECTIVES

HISTORY AND GOVERNMENT		DR 314	Drama Appreciation II .....3
HY 204	Hist. of the Modern World .....3	MU 373	Appreciation of Music .....3
HY 207	or 208 World History .....5	MU 374	Masterpieces of Music .....3
HY 314	United States Colonial History .....3	ECONOMICS AND GEOGRAPHY	
HY 315	International Organization .....3	EC 206	Socio-Economic Foundations of Contemporary America .....3
HY 322	The U.S. in World Affairs .....3	GY 301	Geo-Political Basis of World Powers 3
HY 371	History of the West .....3	GY 405	Cultural Geography of the World .....5
HY 460	Great Leaders of History .....5	GY 407	World Resources & Their Utilization .....5
HY 482	History of the South .....5	SOCIOLOGY	
HY	Current Events .....1	SY 201	Introduction to Sociology .....5
PO 206	United States Government .....5	SY 204	Social Behavior .....5
PO 407	Political Science .....5	SY 307	The Court and Penal Administration 3
LITERATURE		SY 311	Technology and Social Change .....3
EH 208	Literature of the Western World .....3	SY 403	Regional Sociology .....5
EH 320	An Introduction to Drama .....3	PHILOSOPHY AND RELIGION	
EH 350	Shakespeare's Greatest Plays .....3	PA 301	Introduction to Philosophy .....3
EH 355	Masterpieces of World Literature .....3	PA 302	Introduction to Ethics .....3
EH 365	Southern Literature .....3	PA 330	Philosophy of Religion .....5
EH 381	The Literature of the Age of Reason 3	PA 307	Scientific Reasoning .....5
EH 385	The Impact of Science and Tech- nology upon Modern Literature .....3	PA 308	Introduction to Logic .....3
SP 310	Great American Speeches .....3	PA 440	American Philosophy .....5
THE ARTS		PSYCHOLOGY	
AT 332	American Painting and Sculpture .....3	PG 211	General Psychology .....5
AT 431	Contemporary Art .....3	PG 311	Behavior of Man .....3
AR 360	Appreciation of Architecture .....3	PG 461	Industrial Psychology .....5
DR 313	Drama Appreciation I .....3		

Curriculum in Biological Sciences (BI)

Major in Botany

FRESHMAN YEAR

(Same as in Agricultural Science except that BY 101 and 102 will be taken in place of ZY 101 and 102.)

SOPHOMORE YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
ZY 101	General Zoology .....5	ZY 102	General Zoology .....5	AS 202	Agr. Economics .....5
CH 105	Gen. Chemistry .....3	CH 207	Organic Chem. ....5	EH 253	Lit. in English .....5
CH 105L	Gen. Chem. Lab. ....2	PS 206	Intr. Physics .....5		Elective .....5
PS 205	Intr. Physics .....5	MS	Military Training ....1	MS	Military Training ....1
MS	Military Training ....1	PE	Physical Education ....1	PE	Physical Education ....1
PE	Physical Education ....1				

JUNIOR YEAR

EH 390	Adv. Composition ....5	AY 304	General Soils .....5	BY 308	Fund. Plant Physiology .....5
VM 200	Gen. Microbiology ....5	BY 309	Gen. Plant Pathology .....5	ZY 304	Gen. Entomology ....5
	Elective .....5		Electives .....3		Electives .....8
SP 210	Public Speaking .....3				

SENIOR YEAR

BY 413	Gen. Pl. Ecology ....5	BY 415	Plant Anatomy .....5	BY 406	Systematic Botany ....5
FL 121	Elem. French or	FL 122	Elem. French or		Electives .....13
FY 151	Elem. German .....5	FL 152	Elem. German .....5		
ZY 300	Genetics .....5		Electives .....8		
	Elective .....3				

Total—210 quarter hours

Students desiring to major in Botany will be assigned an adviser. A major will, during the sophomore year, with the assistance and approval of the adviser develop a plan of study for the junior and senior years from lists of approved elective courses. As approved by the Dean of Agriculture and the student's adviser, substitutions may be permitted to meet specific needs of individual students.

Majors in Zoological Sciences

Majors in zoological sciences are for students interested in careers in animal biology. One has the choice of four options: zoology, entomology, fisheries, or wildlife, and degrees are offered in each option.

During the first two years all students take the same subjects which emphasize the basic sciences and background courses. Thereafter, it is possible to elect courses to fit specific needs of the student in his or her option. The program during the junior and senior years is developed under the guidance of a faculty adviser who works closely with the student. During this period the student may wish to work toward graduate school upon graduation. The faculty adviser assists the student in developing a program of study and with other academic and personal matters throughout his four years of training. Diversified career opportunities are excellent for well-trained persons in zoological sciences, and the opportunities increase as the level of training is raised.

At the bachelor's degree level, greatest demands are for research, management, survey, and regulatory work with state or federal agencies concerned with insects, fish, wildlife, or public health; for public relations and sales work with commercial companies; for technical assistants in research laboratories; for conservation and recreational work; and for private enterprises. At the graduate degree levels, opportunities are greatly enhanced, particularly for teaching, research, and extension at the university level; for research, development, and management with industry; for research with the Public Health Service, Fish and Wildlife Service, Entomology Research Division, United States Department of Agriculture, the Atomic Energy Commission, and other research organizations; and for employment in other areas.

Zoological Sciences

Options: Entomology, Fisheries, Wildlife, Zoology

FRESHMAN YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
EH 101	English Comp. ....5	CH 103	General Chemistry 4	BY 101	General Botany ....5
MH 160	Algebra & Trig. ....5	CH 103L	Gen. Chem. Lab. .1	CH 104	General Chemistry 4
ZY 101	General Zoology ....5	MH 161	Anal. Geom. & Cal. 5	CH 104L	Gen. Chem. Lab. .1
ZY 100	Zool. Orientation .0	ZY 102	General Zoology ....5	EH 102	English Comp. ....5
MS	Military Training ....1	AS 101	Agr. Orientation .0	MS	Military Training ....1
PE	Physical Education .1	MS	Military Training ....1	PE	Physical Education .1
		PE	Physical Education .1		

SOPHOMORE YEAR

BY 102	General Botany ....5	CH 207	Organic Chemistry or	CH 208	Organic Chemistry or
PS 205	Intr. Physics ....5	CH 203	Organic Chem.* ....5	AH 204	Animal Biochemistry
ZY 304	Gen. Entomology ....5	HY 107	United States Hist. 5		& Nutrition* ....5
MS	Military Training ....1	PS 206	Intr. Physics ....5	AS 202	Agr. Economics ....5
PE	Physical Education .1	MS	Military Training ....1	ZY 300	Genetics ....5
		PE	Physical Education .1	MS	Military Training ....1
				PE	Physical Education .1

* For students who will not attend graduate school.

JUNIOR YEAR

Electives	.....18	ZY 301	Comp. Anatomy ....5	ZY 306	Principles of
		Electives	.....13		Animal Ecology ....3
				Electives	.....16

SENIOR YEAR

ZY 411	Parasitology ....5	ZY 401	Invert. Zoology ....5	Electives	.....18
ZY 424	Animal Physiology .5	Electives	.....13		
Electives	.....8				

Total—211 quarter hours

GROUP ELECTIVES—ZOOLOGY AND ENTOMOLOGY

Students in Zoology and/or Entomology must take a minimum of 40 hours from the group electives listed below, including EH 304, SP 210, ZY 308, ZY 421 or 422, and VM 200. Other electives are free, except that all electives must be approved by the faculty adviser.

AY 304	Soils	.....5	ZY 302	Vertebrate Embryology	.....5
AY 401	Forage Crops	.....5	ZY 308	Microbiology	.....5
BY 306	Fund. of Plant Physiology	.....5	ZY 402	Economic Entomology	.....5
BY 309	Plant Pathology	.....5	ZY 404	Medical Entomology	.....5
BY 401	Biological Statistics	.....5	ZY 405	Forest Insects	.....5
BY 406	Systematic Botany	.....5	ZY 406	Bee Culture	.....3
BY 413	Plant Ecology	.....5	ZY 407	Insect Morphology	.....5
EH 304	Technical Writing	.....3	ZY 409	Histology	.....5
FL 121-22	Elementary French	.....10	ZY 410	Systematic Entomology	.....5
FL 131-32	Elementary Spanish	.....10	ZY 418-19	Experimental Heredity	.....6
FL 151-52	Elementary German	.....10	ZY 421	Vertebrate Zoology I	.....5
FY 313	Farm Forestry	.....5	ZY 422	Vertebrate Zoology II	.....5
SP 210	Public Speaking	.....3	ZY 435	Marine Biology	.....3
VM 200	General Microbiology	.....5			

GROUP ELECTIVES—FISHERIES AND WILDLIFE

Students in Fisheries and/or Wildlife must take a minimum of 40 hours from the group electives listed below, including EH 304, SP 210, ZY 421 or 422, ZY 326 or 426, and ZY 436. Other electives are free, except that all electives must be approved by the faculty adviser.

AY 304	Soils	.....5	VM 200	General Microbiology	.....5
AY 401	Forage Crops	.....5	ZY 326	Wildlife Biology	.....5
BY 306	Fund. of Plant Physiology	.....5	ZY 414	Aquatic Insect Taxonomy	.....3
BY 401	Biological Statistics	.....5	ZY 415	Limnology	.....5
BY 406	Systematic Botany	.....5	ZY 416	Biological Productivity and	
BY 410	Aquatic Plants	.....5		Water Quality	.....3
BY 413	Plant Ecology	.....5	ZY 421	Vertebrate Zoology I	.....5
EH 304	Technical Writing	.....3	ZY 422	Vertebrate Zoology II	.....5
FL 121-22	Elementary French	.....10	ZY 426	Game Management	.....5
FL 131-32	Elementary Spanish	.....10	ZY 427	Wildlife Habitat Analysis	.....3
FL 151-52	Elementary German	.....10	ZY 428	Hatchery Management	.....3
FY 201	Dendrology	.....3	ZY 435	Marine Biology	.....3
FY 202	Dendrology	.....3	ZY 436	Management of Small Impoundments	.....3
FY 203	Silvics	.....5	ZY 437	Fisheries Biology	.....3
FY 301	Silviculture	.....5	ZY 442	Marine Invertebrate Zoology	.....9
FY 313	Farm Forestry	.....5	ZY 443	Marine Vert. Zool. & Ichthyology	.....9
FY 434	Forest Policy	.....3	ZY 444	Marine Fisheries Biology	.....6
SP 210	Public Speaking	.....3			

Food Science

The Food Science curriculum is designed for those who are interested in positions in the rapidly expanding food industry. The curriculum is administered through a faculty advisory system wherein a program of study may be developed in accordance with the needs and interests of the individual student. In this manner, a student may take a general course or may specialize in a commodity area such as dairy products, meats or fruits and vegetables. He may elect a business option with supporting courses in economics and business or he may elect a sciences option.

Curriculum in Food Science (FS)

FRESHMAN YEAR

FIRST QUARTER

CH 103	Gen. Chemistry	.....4
CH 103L	Gen. Chem. Lab.	..1
HY 107	U.S. History	.....5
MH 160	Algebra & Trig.	.....5
DH 101	Man's Food	.....1
MS	Military Training	..1
PE	Physical Education	..1

SECOND QUARTER

CH 104	Gen. Chemistry	.....4
CH 104L	Gen. Chem. Lab.	..1
EH 101	English Comp.	.....5
MH 161	Anal. Geom. & Cal.	..5
LY 101	Library Science	.....1
MS	Military Training	..1
PE	Physical Education	..1

THIRD QUARTER

BY 101	Gen. Botany	.....5
EH 102	English Comp.	.....5
ZY 101	Gen. Zoology	.....5
MS	Military Training	..1
PE	Physical Education	..1

SOPHOMORE YEAR

CH 207	Organic Chem.	.....5
EH 345	Bus. & Prof. Writ.	..5
PS 204	Found. of Physics	..5
MS	Military Training	..1
PE	Physical Education	..1

AS 202	Agr. Economics or	
EC 200	Gen. Economics	.....5
CH 208	Organic Chem.	.....5
SP 211	Ess. of Public	
	Speaking	.....5
MS	Military Training	..1
PE	Physical Education	..1

EC 215	Fund. of Gen. & Cost Acct.	.....5
HE 312	Food Science	.....5
VM 200	Gen. Microbiology	..5
MS	Military Training	..1
PE	Physical Education	..1

JUNIOR YEAR

HF 340	Ind. Food Pres. Technology	.....5
	Electives	.....13

HF 341	Ind. Food Equip. & Processing I	.....5
	Electives	.....13

DH 410	Food Microbiology	..5
HF 342	Ind. Food Equip. & Processing II	.....5
	Electives	.....8

SENIOR YEAR

DH 411	Food Plant San.	.....3
	Electives	.....15

HF 343	Food Anal. & Qual. Control	.....5
	Electives	.....13

DH 412	Food Sc. Sem.	.....1
	Electives	.....18

Total—213 quarter hours

Students taking Food Science will be assigned a Faculty Adviser on entering this curriculum. A program of study for the junior and senior years will be worked out jointly by the student and his adviser from lists of approved electives based on the needs and interests of the student.

Forestry

Two curricula are offered in forestry, one in forest management and the other in wood technology. The former leads to the degree Bachelor of Science in Forestry while the other leads to the degree Bachelor of Science in Wood Technology. The Department also offers an honors program in forest management which leads to the degree Bachelor of Science in Forestry (Honors Program).

Training in forest management and administration prepares the student as a land manager. He acquires professional knowledge and skills relating to efficient production of wood as a raw material. He studies policies, techniques and procedures whereby land may be managed for related products and services including water, wildlife and recreation. There is a strong demand for foresters in private industry in the South. State and Federal agencies as well as consulting foresters employ a large number of graduates. The graduate may expect his initial assignments to include land line surveying, timber cruising, timber marking and land and timber purchasing. After

experience is gained the graduate will assume more responsibility for land management plans and policies in his capacity as a land manager.

Wood technology is the science of making the most efficient use of the products of the tree. This includes the development of new products as well as more efficient production of standard products. The wood technologist must understand the physics and chemistry of wood as well as its anatomy and structure and must be familiar with various wood products and the methods for manufacturing them. The curriculum is sufficiently flexible that the student may specialize in chemistry, structural design, industrial management or in other fields of his choice by proper selection of his minors in these fields. The wood technologist finds employment with wood manufacturing industries and their suppliers as well as with private and public organizations which carry on research and product development for industry.

The Department of Forestry is accredited by the Society of American Foresters.

Curriculum in Forest Management (FY)

FRESHMAN YEAR

FIRST QUARTER

BY 101	General Botany	.....5
MH 160	Algebra & Trig.	.....5
FY 101	Intr. to Forestry	.....3
FY 104	Forest Cartography	.....2
FY 105	For. Convocation*	.....0
MS	Military Training	.....1
PE	Physical Education	.....1

SECOND QUARTER

BY 102	General Botany	.....5
CH 103	General Chemistry	.....4
CH 103L	Gen. Chem. Lab.	.....1
MH 161	Anal. Geom. & Cal.	.....5
LY 101	Use of Library	.....1
MS	Military Training	.....1
PE	Physical Education	.....1

THIRD QUARTER

MH 162	Anal. Geom. & Cal.	.....5
CH 104	General Chemistry	.....4
CH 104L	Gen. Chem. Lab.	.....1
EH 101	English Comp.	.....5
MS	Military Training	.....1
PE	Physical Education	.....1

SOPHOMORE YEAR

BY 306	Plant Physiology	.....5
CE 201	Surveying I	.....5
EH 102	English Comp.	.....5
FY 201	Dendrology	.....3
MS	Military Training	.....1
PE	Physical Education	.....1

AY 305	General Soils	.....5
PS 205	Intr. Physics	.....5
ZY 101	General Zoology	.....5
FY 202	Dendrology	.....3
MS	Military Training	.....1
PE	Physical Education	.....1

FY 203	Silvics	.....5
AS 202	Agr. Economics	.....5
PO 206	United States Govt.	.....5
MS	Military Training	.....1
PE	Physical Education	.....1

JUNIOR YEAR

FY 204	For. Mensuration	.....5
FY 205	Wood Identification	.....5
EH 304	Technical Writing	.....3
	Elective	.....6

EC 215	Fund. Cost Acctg.	.....5
FY 212	Forest Fire Control	.....3
FY 309	Sampling	.....3
FY 316	Forest Economics	.....3
SP 210	Public Speaking**	.....3
	Elective	.....3

BY 310	Forest Pathology	.....5
FY 303	Forest Recreation	.....3
FY 310	Adv. Mensuration	.....3
FY 420	Silviculture	.....5
	Elective	.....3

SUMMER CAMP

FY 390	Field Mensuration	.....5
FY 391	Forest Engineering	.....5
FY 397	Forest Regeneration	.....3
FY 393	Ala. Forest Indust.	.....3
FY 396	Forest Site Evaluation	.....2

SENIOR YEAR

FY 427	Forest Valuation	.....5
FY 408	Logging	.....3
FY 414	Reg. Silviculture	.....3
FY 434	Forest Policy	.....3
	Elective	.....3

FY 407	Forest Mgt.	.....5
FY 417	Photogrammetry	.....5
FY 435	Forest Products Merchandising	.....5
	Elective	.....5

ZY 305	Forest Entomology	.....5
FY 415	Range Mgt.	.....2
ZY 425	For. Wildlife Mgt.	.....3
FY 418	Adv. Forest Mgt.	.....3
	Elective	.....3

Total—238 quarter hours

* This course will be taken in all except Summer Quarters.

** This course will not be required of students electing an Advanced ROTC program.

ELECTIVES

Fifteen of the 23 elective hours included in the forest management curriculum must be selected from an approved list of humanistic-social electives. Furthermore, a minimum of one course must be selected from each of the following categories:

I. Literature and the Arts, II. Economics and History, and III. Other Social Sciences.

Nine hours of Advanced ROTC may be charged against the humanistic-social elective requirement. The remaining nine hours of Advanced ROTC may be chosen from free electives and the three credit hours normally required for SP 210 Public Speaking.

Honors Program in Forestry

The Honors Program in Forestry provides able students opportunity to explore in depth areas in which they are interested, to prepare for graduate school, or to obtain a more rounded education. The program is flexible, permitting concentration of effort in areas of the student's choosing.

Students with at least five quarters remaining in the Forest Management curriculum and with a grade point average of 1.75 or better may apply for admission to the program following completion of the course work requirements through the first six quarters. Permission for election to the program rests with the Head and Executive Council of the Department of Forestry. Upon admission the student will be assigned to a faculty adviser who will guide him in the preparation of his program.

JUNIOR YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
FY 204	For. Mensur. ....5	FY 309	Sampling .....3	FY 420	Silviculture .....5
FY 205	Wood Identification 5	FY 316	Forest Economics ...3		Electives .....15
EH 304	Technical Writing ...3	SP 210	Public Speaking* ...3		
	Elective .....5		Electives10		

SUMMER CAMP

FY 390	Field Mensuration ..5
FY 391	Forest Engineering ..5
FY 397	Forest Regeneration 3
FY 393	Ala. Forest Indust. 3
FY 396	Forest Site
	Evaluation2

SENIOR YEAR

FY 434	Forest Policy .....3	FY 407	Forest Management 5	FY 421	Forest Research
FY 427	Forest Valuation ...5		Electives .....13		Methods** .....3
	Electives .....12			FY 480	Senior Thesis .....5
				FY 490	Seminar in Forestry 1
					Electives9

Total—238 quarter hours

In addition, one of the following courses must be selected: BY 310, Forest Pathology (5); FY 302, Forest Fire Control (3); or ZY 305, Forest Entomology (5).

* This course will not be required for students electing an Advanced ROTC program.

** Any 3 or 5 hour course in statistics may be substituted for FY 421.

The requirements relative to the humanistic-social electives are the same as with the standard forest management curriculum. Twenty-five of the remaining elective hours are to be chosen, under the supervision of the faculty adviser, so as to develop a distinct program leading to a predetermined goal. None of the twenty-five hours in the special program may be used for Advanced Military Science.

Curriculum in Wood Technology (WT)

FRESHMAN YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
EH 101	English Comp. ....5	EH 102	English Comp. ....5	BY 101	General Botany .....5
CH 103	General Chemistry 4	CH 104	General Chemistry 4	CH 105	General Chemistry 3
CH 103L	Gen. Chem. Lab. ...1	CH 104L	Gen. Chem. Lab. ...1	CH 105L	Gen. Chem. Lab. ...2
MH 160	Algebra & Trig. ....5	MH 161	Anal. Geom. & Cal. 5	EG 102	Eng. Drawing .....2
FY 105	Forestry Convo.* ...0	FY 101	Intr. to Forestry ...3	MH 162	Anal. Geom. & Cal. 5
MS	Military Training ...1	MS	Military Training ...1	MS	Military Training ...1
PE	Physical Education ...1	PE	Physical Education ...1	PE	Physical Education ...1

SOPHOMORE YEAR

BY 102	General Botany .....5	PS 206	Intr. Physics .....5	AS 202	Agr. Economics .....5
PS 205	Intr. Physics .....5	FY 202	Dendrology .....3	FY 205	Wood Identification 5
FY 201	Dendrology .....3	FY 206	Wood	EH 304	Technical Writing ...3
MH 263	Anal. Geom. & Cal. 5		Measurement** .....3	MS	Military Training ...1
MS	Military Training ...1		Elective .....5	PE	Physical Education ...1
PE	Physical Education ...1	MS	Military Training ...1		
		PE	Physical Education ...1		

* This course will be taken in all except Summer Quarters.

** Alternate year offering.

JUNIOR YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
CH 203 Organic Chemistry	.5	FY 432 Seasoning & Pres.**	.5	PO 206 U.S. Government	.5
EC 215 Fund. Cost Acctg.	.5	ZY 101 General Zoology	.5	FY 433 Seasoning & Pres.	
FY 311 Wood Tech. I**	.5	SP 210 Public Speaking	.3	Lab.**	.2
Elective	.5	Elective	.5	Electives	.10

SENIOR YEAR

FY 330 Forest Products**	.5	FY 425 Wood Gluing & Lam.**	.5	FY 421 Forest Res. Methods***	.3
Electives	.15	Electives	.13	FY 431 Wood Tech. III**	.5
				Electives	.6

Total—216 quarter hours

*** Any 3 or 5 hour course in statistics may be substituted for FY 421.

Note: Sufficient latitude is allowed that the student may plan his elective work with his adviser to fulfill his personal objectives while in college. Two minors, however, will be required, one of which must be in mathematics, chemistry or engineering. Other suggested minors are: economics, botany, foreign language, zoology, physics, English, business administration, education, and forest management. Each minor shall consist of a minimum of 30 quarter hours in a series of related subjects. Prior to registration for the second quarter of the junior year, the planned course content of the two minors must be approved by the department head. A student may always substitute a more intensive group of courses for one or more of the required courses, provided the same breadth of coverage is maintained.

As a part of the requirement for the degree with a major in wood technology, the student must complete a minimum of three weeks of supervised industrial tours of forest products industries. A satisfactory report on these tours must be submitted to the department head prior to graduation.

Ornamental Horticulture

A blending of art, science and technology, Ornamental Horticulture is one of the Life Sciences concerned with plants for personal enrichment and well-being. The professional Ornamental Horticulturist combines many diverse talents to suit his interests and ambitions.

The Ornamental Horticulture curriculum provides professional and basic knowledge and develops basic skills. By proper selection of electives, students may prepare for careers in research, teaching or extension activities; as owners and managers of floral or woody ornamental production units and of retail outlets for floral and woody ornamental products; landscaping; and managing recreational gardens and other areas.

Degree candidates are required to have three months, or an equivalent of three months, practical experience in industry prior to graduation.

Curriculum in Ornamental Horticulture (OH)

FRESHMAN YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
BY 101 Gen. Botany	.5	BY 102 Gen. Botany	.5	CH 103 General Chemistry	.4
EH 101 English Comp.	.5	EH 102 English Comp.	.5	CH 103L Gen. Chem. Lab.	.1
MH 160 Alg. & Trig.	.5	MH 161 Anal. Geom. & Cal.	.5	HF 221 Landscape Gard.	.5
MS Military Training	.1	HF 101 Intr. to Orn. Hort.	.1	ZY 101 Gen. Zoology	.5
PE Physical Education	.1	MS Military Training	.1	MS Military Training	.1
		PE Physical Education	.1	PE Physical Education	.1

SOPHOMORE YEAR

CH 104 General Chemistry	.4	CH 105 General Chemistry	.3	EC 200 Gen. Econ.	.5
CH 104L Gen. Chem. Lab.	.1	CH 105L Gen. Chem. Lab.	.2	EC 211 Intr. Acctg.	.5
HF 222 Trees	.5	or		PS 205 Intr. Physics	.5
HY 107 U.S. History	.5	CH 207 Organic Chemistry	.5	MS Military Training	.1
MS Military Training	.1	HF 223 Evergreen Shrubs & Vines	.5	PE Physical Education	.1
PE Physical Education	.1	HF 224 Plant Propagation	.5		
		MS Military Training	.1		
		PE Physical Education	.1		

JUNIOR YEAR

FIRST QUARTER

BY 306	Fundamentals of	
	Plant Physiology	5
ZY 300	Genetics	5
HF 323	Greenhouse Const.	
	& Management	5
	Elective	3

SECOND QUARTER

AY 304	Gen. Soils	5
BY 309	Plant Pathology	5
SP 210	Public Speaking	3
	Elective	5

THIRD QUARTER

EH 390	Adv. Comp.	5
HF 321	Deciduous Shrubs	
	& Vines	5
	Electives	8

SENIOR YEAR

HF 432	Controlled Plant	
	Growth	5
ZY 402	Economic Ento-	
	mology	5
	Electives	8

HF 426	Minor Problems	5
	Electives	13

AY 402	Soil Fertility	5
	Electives	13

Total—212 quarter hours

Electives are to be selected with the approval of the student's adviser and dean. There must be a minimum of 25 hours from the Humanities and Social Sciences.

School of Air Force Aerospace Studies

(AFROTC)

COLONEL A. H. RICHARD, JR.

Commandant and Professor of Air Force Aerospace Studies

THE AIR FORCE ROTC was established at Auburn University in the fall of 1946 as the School of Air Science and Tactics. As a result of the ROTC Vitalization Act of 1964, H.R. 9124, the curriculum was revised and the departmental title changed to the School of Air Force Aerospace Studies. The officer education program under the new legislation is a new program designed to provide education that will develop skills and attitudes vital to the professional Air Force Officer. It is designed to qualify for commission those college men who desire to serve in the United States Air Force.

The curriculum in Air Force Aerospace Studies is divided into two courses, the General Military Education Program (Basic) and the Professional Officer Education Program (Advanced). For transfer students there is an off-campus program as a substitute for the basic course. A description of these courses, requirements for entrance, etc. are listed below.

Financial Assistance Program

Certain outstanding students may be selected by the Professor of Aerospace Studies to receive scholarships under the Financial Assistance Program. For these students, the Government will pay for the cost of tuition, fees, and textbooks. Necessary uniforms will be provided by the Government and students will receive retainer pay at the rate of \$600 per year. Only members of the four year on-campus program are eligible for the Financial Assistance Program.

General Military Education Program (Basic Course)

The Air Force course of study normally pursued by the student during his freshman and sophomore academic years is the General Military Education Program. One credit hour is allowed for each quarter of the two-year basic course successfully completed. Leadership Laboratory (drill) is scheduled each Tuesday and Thursday from 1:10 to 2:00 p.m.

In the freshman and sophomore years, classroom activity of one hour per week plus two hours of drill are required. Six quarters of classroom activity and six quarters of drill must be successfully completed to satisfy the University's military requirement.

Field Training Course

Since the General Military Education Program, or its equivalent, is a requirement for admission to the Professional Officer Education Program, provision has been made for off-campus training for transfer students who were unable to complete the basic course. These students, after application and acceptance, attend a Field Training Course at an Air Force Base for six weeks during the summer prior to their junior year. This course is an intensified mili-

tary training program, with classroom work to cover the same material contained in the basic course. At the summer camp, these students are paid approximately \$120 monthly plus travel pay to and from camp. Uniforms, quarters, and rations are furnished by the Government during the training period. Upon successful completion of this course, students are eligible for the Advanced Course.

Professional Officer Education Program (Advanced Course)

The Professional Officer Education Program is designed to provide highly qualified junior officers for the United States Air Force. Enrollment in the program is based upon such factors as leadership, qualification and desire for flying training, academic major, scholastic achievement, and physical qualifications. Successful completion of the course qualifies the student for consideration for appointment as a Second Lieutenant in the USAF.

The program consists of a six-quarter course, normally taken during the junior and senior years. Three credit hours are allowed each quarter. For limitation on credit allowed toward meeting engineering degree requirements, see engineering curricula. Five hours of instruction are taken per week, three classroom periods and two drill periods. Students are paid \$40 per month while enrolled in the program.

A student selected for enrollment in Category I-P (Pilot) will be given 36½ hours of actual flying and 35 hours of ground instruction, which may qualify him for a private flying certificate.

A summer training period of four weeks duration must be attended by the advanced student if he has not successfully completed a six-week Field Training Encampment prior to entering the Professional Officers Course (POC). (See Paragraph 10 below.) Summer training is normally accomplished during the summer between the junior and senior years. Uniforms, quarters, and rations are furnished by the government during the training period as well as travel expenses to and from camp. Cadets are paid approximately \$120 per month while attending the summer training unit.

Requirements for admission to the Professional Officer Education Program are as follows:

1. Be a United States citizen.
2. Be physically qualified in accordance with standards prescribed by the Department of the Air Force.
3. Be under 28 years of age at time of graduation and completion of the Advanced Course.
4. Students desiring to qualify for an Aeronautical rating in the USAF must not have reached 26½ years of age at time of graduation and completion of the Advanced Course, and must accept an appointment to an Air Force Flight Training School.
5. Usually have two academic years to complete for graduation.
6. Have an academic average of 1.0 or higher.
7. Be selected by the Professor of Aerospace Studies.
8. Must execute a written agreement to complete the two year Advanced Course training and to attend one summer training session (four weeks). Upon completion of the advanced course must accept an appointment in the Air

Force in the grade of Second Lieutenant, if tendered, and must agree to serve on active duty as a commissioned officer with the United States Air Force, for not less than four years, in the case of Category II (Scientific and Engineering) and Category III (General) cadets and not less than five years, in the case of category I-P (Pilot) and Category I-N (Navigator). (Veterans are exempt from this active duty requirement.)

9. Must enlist in the Air Force Reserve for a period of not less than six years (eight years for students in the Financial Assistance Program).

10. Have completed six quarters of basic training or a six-week Field Training Encampment, or have equivalent credit in lieu thereof, and have attained qualifying scores on Air Force Officer Qualifying Tests.

11. Veterans who desire to enroll in the Advanced Course on the basis of previous honorable active U.S. military service must request a waiver of the Basic Course, or portion thereof as a requirement for entrance. If a student meets all other requirements, he will be enrolled at the beginning of his junior year.

Uniforms and Equipment

All students are required to deposit \$30.00 with the Bursar of the University prior to enrollment in the AFROTC. They are furnished a uniform in good condition and other necessary supplies through the AFROTC Supply Office under the uniform commutation system. Upon completion of the course of instruction, or upon withdrawal, the uniform and other supplies are turned in and the deposit returned to the student.

Advanced Air Force students are furnished regulation officer uniforms. Upon graduation, the uniform becomes the property of the advanced student.

Distinguished AFROTC Graduates

Distinguished AFROTC Graduates will be tendered commissions in the Regular Air Force which are the same as commissions received from the Air Force Academy. All other AFROTC graduates will be tendered reserve commissions.

The Professor of Air Force Aerospace Studies may designate as a Distinguished AFROTC Graduate a cadet who:

1. Possesses outstanding qualities of leadership and high moral character.
2. Demonstrates leadership ability through achievements while participating in recognized campus activities, both curricular and extra-curricular.
3. Has a standing in his academic and military classes which, in conjunction with (1) and (2), above, warrants designation as "Distinguished," and consideration for an appointment in the Regular Air Force.

School of Architecture and The Arts

WILLIAM A. SPEER, *Dean*

THE SCHOOL OF ARCHITECTURE AND THE ARTS includes the Departments of Architecture, Art, Building Technology, Drama, and Music. Undergraduate degree courses are offered in Architecture, Fine Arts, Visual Arts, Drama, Music, Interior Design, and Industrial Design. Graduate degree courses are offered in Art and Building Construction. The Departments of Drama and Music offer sound basic training courses in these fields for students wishing to elect a minor or major concentration in them.

The School of Architecture and the Arts, in cooperation with the office of the Vice President for Extension, is developing continuing education and extension programs.

A continuing education seminar entitled "Introduction to Local Planning" is now being offered to civic leaders, community leaders, and to municipal employees of Alabama municipalities. It is believed that such persons completing the course will recognize the need for establishing adequate planning for their communities and municipalities.

Department of Architecture

The Department of Architecture was established in 1907 and is the oldest in the South. Courses are offered leading to the degrees Bachelor of Architecture, Bachelor of Interior Design and Bachelor of Industrial Design.

New students may enter the department any quarter. Transfer students with advanced credit may complete their first year requirements by taking advantage of the Summer session which combines AT 105 and AR 110 and 111.

Architecture

The Curriculum in Architecture prepares the student to take his place as a citizen and as a professional. Since the building industry is one of the three largest in the nation in terms of expenditure and employment, the architect today must accept a concern for the improvement of the physical environment and assume the leadership in evolving effective procedures toward this end. Therefore, in an era of broad technological advancement, the architect must bring to his work technical knowledge, social insight, creative imagination, and individual integrity.

The Department of Architecture is a member of the Association of Collegiate Schools of Architecture, and the curriculum in Architecture is accredited by the National Architectural Accrediting Board. Training at Auburn University prepares the student for the office experience and the examination required by the registration laws for the practice of architecture in Alabama as well as for examination by the National Council of Architectural Registration Boards.

Curriculum in Architecture (AR)

FIRST YEAR		
FIRST QUARTER	SECOND QUARTER	THIRD QUARTER
AT 105 Basic Drawing .....5	AR 110 Design Fundamentals .....5	AR 111 Design Fundamentals .....5
DR 101 Intr. to Arts .....1	DR 102 Intr. to Arts .....1	DR 103 Intr. to Arts .....1
EH 101 English Comp. ....5	EH 102 English Comp. ....5	MH 102 Anal. Geom. & Cal. 5
MH 100 Algebra & Trig. ....5	MH 101 Anal. Geom. & Cal. 5	PS 205 Physics .....5
MS Military Training .....1	MS Military Training .....1	MS Military Training .....1
PE Physical Education .....1	PE Physical Education .....1	PE Physical Education .....1
SECOND YEAR		
AR 201 Arch. Design .....5	AR 202 Arch. Design .....5	AR 203 Arch. Design .....5
MH 203 Anal. Geom. & Cal. 5	BT 106 Matls. & Constr. ....5	BT 220 Mech. of Struct. ....5
PS 206 Physics .....5	Group Elective .....5	Group Elective .....5
MS Military Training .....1	MS Military Training .....1	MS Military Training .....1
PE Physical Education .....1	PE Physical Education .....1	PE Physical Education .....1
THIRD YEAR		
AR 301 Arch. Design .....5	AR 302 Arch. Design .....5	AR 303 Arch. Design .....5
BT 311 Structures I .....3	BT 312 Structures II .....3	BT 313 Structures III .....3
AR 361 History & Theory of Architecture .....3	AR 362 History & Theory of Architecture .....3	AR 363 History & Theory of Architecture .....3
PG 211 Psychology .....5	SY 201 Sociology .....5	EC 206 Socio-Economic Foundations .....3
General Elective .....3	General Elective .....3	AR 374 Planning .....2
		General Elective .....3
FOURTH YEAR		
AR 401 Arch. Design .....5	AR 402 Arch. Design .....5	AR 403 Arch. Design .....5
BT 411 Structures IV .....3	BT 412 Structures V .....3	BT 413 Structures VI .....3
AR 461 History & Theory of Architecture .....3	AR 462 History & Theory of Architecture .....3	AR 463 History & Theory of Architecture .....3
SY 405 Sociology .....5	BT 452 Bldg. Equipment .....3	BT 453 Bldg. Equipment .....3
General Elective .....3	Group Elective .....5	Group Elective .....5
FIFTH YEAR		
AR 501 Arch. Design .....5	AR 502 Arch. Design .....5	AR 503 Arch. Design .....7
AR 521 Prof. Prac. ....5	AR 522 Prof. Prac. ....5	Seminar .....5
BT 541 Bldg. Equipment .....2	AR 512 Design Research .....2	Group Elective .....5
Seminar .....2	Group Elective .....5	
Group Elective .....3		

Total—272 quarter hours

Five-hour elective courses will include either three courses in advanced structures or electives chosen from the group electives in Art, Economics, English, Foreign Languages, History, Philosophy, Psychology, Sociology, and Speech.

Three-hours elective courses taken in lieu of Advanced ROTC will be chosen from the following: Economics, English, History, Music, Philosophy, Religion, and Sociology.

Seminars will be chosen from the following list:

AR 558 Seminar in Contemporary Concepts.....	5
AR 559 Seminar in Historical Problems.....	5
AR 560 The Architect and Society.....	2
AR 561 Seminar in Urban Design.....	2
AR 563 Seminar in Architecture Literature.....	2
AR 564 Art and Architecture Seminar.....	3

Honors Program in Architecture

Beginning in the fourth year of the curriculum in Architecture, superior students capable of independent study may be permitted on recommendation of the Committee on Honors Program to pursue an approved sequence of study designed to develop a field of concentration. Following nomination by the Committee, each student shall submit a plan of study for approval before commencing the work. The Program shall comprise a total of 20 hours of credit in the chosen area of study, of which at least 5 hours shall be spent in independent study directed by the Committee. At least 15 hours of normally

required elective credit shall be planned as related courses. Appropriate extra assignments in these courses shall be arranged by the Committee for students enrolled and a high level of performance shall be maintained in all work. At the option of the Committee a comprehensive examination appropriate to the study may be required.

Upon successful completion of the work the candidate shall be awarded the degree Bachelor of Architecture (Honors Program). A total of 279 hours is required for graduation under this Program.

Interior Design

The curriculum in Interior Design seeks to prepare the student to take his place as a professional specialist in the design of interior space. As such, he expects to assume a responsible role among those who shape physical environment. His primary interest in the development of interiors is concerned with the social, historical and technical implications of these aspects of space, surface and material which distinguish his work. His training will enable him to develop a practice as a private consultant, as a designer of furniture and textiles, and as a valuable associate of the architectural design team.

Curriculum in Interior Design (ID)

FIRST YEAR		
FIRST QUARTER	SECOND QUARTER	THIRD QUARTER
AT 105 Drawing I .....5	AR 110 Design Fundamentals .....5	AR 111 Design Fundamentals .....5
EH 101 English Comp. ....5	EH 102 English Comp. ....5	EH 108 Classical Literature 5
MH 121 Intr. College Math. 5	MH 122 Intr. College Math. 5	FL 121 Foreign Language .5
DR 101 Intr. to the Arts ....1	DR 102 Intr. to the Arts ....1	DR 103 Intr. to the Arts ....1
MS Military Training ....1	MS Military Training ....1	MS Military Training ....1
PE Physical Education ....1	PE Physical Education ....1	PE Physical Education ....1
SECOND YEAR		
AR 201 Arch. Design .....5	AR 202 Arch. Design .....5	AR 203 Arch. Design .....5
PG 211 General Psychology 5	EC 200 General Economics 5	BT 106 Materials & Constr. 5
AR 361 History & Theory of Architecture .....3	AR 362 History & Theory of Architecture .....3	AR 363 History & Theory of Architecture .....3
AR 215 Elements of ID .....2	AR 216 Elements of ID .....2	AR 217 Elements of ID .....2
MS Military Training ....1	MS Military Training ....1	MS Military Training ....1
PE Physical Education ....1	PE Physical Education ....1	PE Physical Education ....1
THIRD YEAR		
AR 305 Interior Design .....5	AR 306 Interior Design .....5	AR 307 Interior Design .....5
SY 201 Intr. to Sociology .5	HE 415 History of Textiles .5	EC 331 Marketing .....5
AR 461 History & Theory of Architecture .....3	AR 462 History & Theory of Architecture .....3	AR 463 History & Theory of Architecture .....3
AR 365 Period Interiors .....2	AR 366 Period Interiors .....2	AR 367 Contemporary Interiors .....2
General Elective .....3	General Elective .....3	General Elective .....3
FOURTH YEAR		
AR 405 Interior Design .....5	AR 406 Interior Design .....5	AR 407 Interior Design .....7
AT 338 Art History I .....5	AT 339 Art History II .....5	Group Elective .....5
AR 441 Professional Prac. ....2	AR 408 Int. Des. Research 2	Group Elective .....5
HE 345 Creative Crafts .....2	Group Elective .....5	
General Elective .....3		

Total—210 quarter hours

Industrial Design

Industrial Design is concerned primarily with the relation of products and systems to those who use them, whether it is a typewriter, shelter, chair, automobile, or a therapeutic machine, and encompasses such areas as: product

design, industrialized building, package design, corporate identification, transportation design, exhibition design, systems design, and space and environmental planning.

The professional industrial designer works as a leading team member of the development of almost any object of everyday use including consumer goods and capital goods. He studies the total impact of a probable object upon its user, and creates from this viewpoint a useful product which improves the human environment.

Industrial Design is thus an integrating activity in which different abstract data and points of view from technology, art, science and the humanities are transformed and physically embodied into the form, structure, and functions of a machine-produced object for practical and aesthetic use.

The synthesizing Industrial Design courses are based on a multi-disciplinary concept. The four-year curriculum leads to the professional degree of Bachelor of Industrial Design. Graduates will qualify for the positions in Industrial Design consultant offices and in various industries.

The cooperative education program is offered. For more information refer to page 54.

Curriculum in Industrial Design (IN)

FIRST YEAR

FIRST QUARTER

AT 105	Drawing I	5
EH 101	English Comp.	5
MH 121	Intr. College Math.	5
IL 101	Woodworking	1
DR 101	Intr. to the Arts	1
MS 101	Military Training	1
PE	Physical Education	1

SECOND QUARTER

AR 110	Design Fundamentals	5
EH 102	English Comp.	5
MH 122	Intr. College Math.	5
IL 102	Welding Sci. & Appl.	1
DR 102	Intr. to the Arts	1
MS 102	Military Training	1
PE	Physical Education	1

THIRD QUARTER

AR 111	Design Fundamentals	5
CH 102	Intr. Coll. Chemistry	3
PA 202	Ethics & Society	5
DR 103	Intr. to the Arts	1
EG 102	Engr. Drawing I	2
IL 103	Machine Tool Lab.	1
MS 103	Military Training	1
PE	Physical Education	1

SECOND YEAR

AR 210	Industrial Design	5
AT 212	Graphic Processes	5
AR 221	Mats. & Technology	5
EG 104	Descr. Geometry	2
IL 104	Sheet Mtl. Des. & Fabrication	1
MS 201	Military Training	1
PE	Physical Education	1

AR 211	Industrial Design	5
AR 222	Tech. Illustration	5
PG 211	Gen. Psychology	5
EG 105	Engr. Drawing II	2
IL 105	Foundry Technology	1
MS 202	Military Training	1
PE	Physical Education	1

AR 212	Industrial Design	5
AR 223	Indus. Des. Methods	5
EG 204	Kinematics of Machines	3
PS 204	Survey in Physics	5
MS 203	Military Training	1
PE	Physical Education	1

THIRD YEAR

AR 310	Industrial Design	5
SP 211	Essentials Pub. Speaking	5
EC 200	General Economics	5
*HY 204	Hist. of Mod. World	3

AR 311	Industrial Design	5
AT 338	Art History I	5
IL 308	Gages & Measurements	5
*EH 385	Literature of the Scientific Age	3

AR 312	Industrial Design	5
PA 307	Scientific Reasoning	5
EC 331	Prin. of Marketing	5
*AR 308	Design Workshop	3

FOURTH YEAR

AR 410	Industrial Design	6
PG 461	Industrial Psychology	5
AR 415	Hist. of Industrial Des.	5
*IL 303	Mfg. Proc.: Shaping, Forming & Fab.	3

AR 411	Industrial Design	6
PA 325	Aesthetics or Symbolic Logic	5
IL 406	Probs. in Machining	5
*PG 490	Spec. Problem Psy: (Human Engineering)	3

AR 412	Industrial Des. Thesis	6
AR 565	Seminar In Indus. Des.	5
SY 408	Industrial Sociology	5
*SY 311	Tech. & Soc. Change	3

Total—228 quarter hours

* Not required for students in Advanced ROTC.

Department of Art

The Department of Art is primarily concerned with professional education in Art. Its curricula are directed toward training students who wish to become professional designers or practitioners in the fine arts. To this end a program of studio courses is combined with studies of the functions and historical background of the visual arts. Courses in general education promote in the student a comprehension of his responsibilities to the society and culture in which he lives. Two curricula are offered: Visual Design and Fine Arts, both leading to the degree of Bachelor of Fine Arts.

Students in the School of Education may elect a minor, major, or special major in Art (See page 100). Students in the School of Science and Literature may elect a minor (15 hours) or a double minor (30) hours in Art.

The Department of Art is a member of the National Association of Schools of Art and the College Art Association.

Fine Arts

The two-year basic course in Fine Arts closely resembles that of Visual Design. Both emphasize a fundamental grasp of drawing, design, color, texture and material, and both seek to stimulate a creative use of these elements. Academic studies in languages and the social sciences provide an understanding of cultural heritages, and of human needs and behavior.

In the third year, with faculty approval, the student enters advanced courses in painting, sculpture, and printmaking. Preferences are emphasized through art electives and thorough academic electives from other areas of the University.

Graduates in Fine Arts may elect to practice in their chosen fields or to teach at advanced levels. Students who contemplate teaching as a career should plan to work toward a Master of Fine Arts degree at this or another institution.

Curriculum in Fine Arts (FA)

FIRST YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
AT 105	Drawing I .....5	AT 106	Drawing II .....5	AT 107	Drawing III .....5
AT 181	Design Fundamentals I .....5	AT 113	Perspective .....3	AT 182	Design Fundamentals II .....5
EH 101	English Comp. ....5	EG 102	Engr. Drawing I ..2	FL 121	Elementary French 5
DR 101	Intr. to the Arts ....1	EH 102	English Comp. ....5	DR 103	Intr. to the Arts ....1
MS	Military Training ....1	DR 102	Intr. to the Arts ....1	MS	Military Training ....1
PE	Physical Education ...1	MS	Military Training ....1	PE	Physical Education ...1
		PE	Physical Education ...1		

SECOND YEAR

AT 211	Lettering .....5	AT 205	Figure Drawing I ..5	AT 215	Figure Construction 5
AT 227	Sculpture I .....5	AT 222	Painting I .....5	AT 224	Painting II .....5
FL 122	Elementary French 5	HY 207	World History .....5	HY 208	World History .....5
MS	Military Training ....1	MS	Military Training ....1	MS	Military Training ....1
PE	Physical Education ...1	PE	Physical Education ...1	PE	Physical Education ...1

THIRD YEAR

AT 307	Figure Drawing II 5	AT 305	Printmaking I .....5	AT 324	Painting IV .....5
AT 322	Painting III .....5	AT 327	Sculpture II .....5	AT 405	Printmaking II .....5
AT 338	Art History I .....5	PG 211	Psychology .....5	EH 253	Lit. in English .....5
*PA 301	Intr. to Philosophy .....3	*PA 302	Intr. to Ethics .....3		Elective .....3

* Six hours of Advanced ROTC may be substituted for PA 301 and 302.

FOURTH YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
AT 339	Art History II .....5	AT 422	Painting V .....5	AT 496	Thesis .....5
AT	Art Elective .....5	AT	Art Elective .....5	AT	Art Elective .....5
PA 325	Aesthetics .....5	EH	Adv. English Elec. 5		Elective .....5
	Elective .....3		Elective .....3		Elective .....3

Total—213 quarter hours

Visual Design

The program in Visual Design gives fundamental training in the techniques of visual communication. Following a two-year course in basic art principles, the student, with faculty approval, enters Visual Design. A core curriculum emphasizes the techniques of drawing for reproduction, lettering and typographical layout. The student is encouraged to think creatively within the limits of materials and processes. Beginning the third year, the student develops special interests in painting, printmaking, sculpture, illustration or fashion through a series of art electives. Courses in economics, sociology, psychology and other academic subjects further an understanding of the function of design in commerce and industry. This breadth of background increases the possibility of future advancement to administrative levels.

Curriculum in Visual Design (VD)

FIRST QUARTER		FIRST YEAR		THIRD QUARTER	
AT 105	Drawing I .....5	AT 106	Drawing II .....5	AT 107	Drawing III .....5
AT 181	Design Fundamentals I .....5	AT 113	Perspective .....3	AT 182	Design Fundamentals II .....5
EH 101	English Comp. ....5	EG 102	Engr. Drawing I .....2	HY 107	U.S. History .....5
DR 101	Intr. to the Arts ....1	EH 102	English Comp. ....5	DR 103	Intr. to the Arts ....1
MS	Military Training ....1	MS	Military Training ....1	MS	Military Training ....1
PE	Physical Education ....1	PE	Physical Education ....1	PE	Physical Education ....1
		SECOND YEAR			
AT 211	Lettering .....5	AT 205	Figure Drawing I .....5	AT 215	Figure Construction 5
AT 227	Sculpture I .....5	AT 212	Graphic Processes .....5	AT 224	Painting II .....5
EH 253	Lit. in English .....5	AT 222	Painting I .....5	PG 211	Psychology .....5
MS	Military Training ....1	MS	Military Training ....1	MS	Military Training ....1
PE	Physical Education ....1	PE	Physical Education ....1	PE	Physical Education ....1
		THIRD YEAR			
AT 307	Figure Drawing II 5	AT 339	Art History II .....5	AT 361	Fashion I .....5
AT 338	Art History I .....5	AT 355	Illustration I .....5	AT 383	Visual Design III .....5
AT 381	Visual Design I .....5	AT 382	Visual Design II .....5	EC 200	General Economics 5
	Elective .....3		Elective .....3		Elective .....3
		FOURTH YEAR			
AT 481	Visual Design IV .....5	EC 331	Marketing Principles 5	AT 496	Thesis .....5
AT	Art Elective .....5	AT	Art Elective .....5	AT	Art Elective .....5
EH	Adv. English .....5	AT	Art Elective .....5		Elective .....5
	Elective .....5		Elective .....3		Elective .....3
	Elective .....3				

Total—213 quarter hours

Graduate Work in Art

Students who hold the degree of Bachelor of Visual Arts, Fine Arts, or a similar degree, are eligible to apply to the Dean of the Graduate School for admission to the graduate course leading to the degree Master of Fine Arts. For details examine the Bulletin of the Graduate School.

Department of Building Technology

The Department of Building Technology offers courses regarding the structural design of buildings, the design of mechanical and other equipment for buildings, the practical application of building materials, the estimation of building costs, methods of construction and field erection procedures. These courses lead to the degree of Bachelor of Building Construction.

Curriculum in Building Construction (BC)

FIRST YEAR		
FIRST QUARTER		THIRD QUARTER
BT 104 Intr. to Building .....6	BT 105 Drawing & Proj. ....6	BT 106 Maths. & Constr. ....5
EH 101 English Comp. ....5	EH 102 English Comp. ....5	MH 162 Anal. Geom. & Cal. 5
MH 160 Algebra & Trig. ....5	MH 161 Anal. Geom. & Cal. 5	PS 205 Physics .....5
MS Military Training ....1	MS Military Training ....1	MS Military Training ....1
PE Physical Education ....1	PE Physical Education ....1	PE Physical Education ....1
SECOND YEAR		
SECOND QUARTER		THIRD QUARTER
EC 200 Gen. Economics .....5	EC 211 Intr. Accounting .....5	BT 220 Mech. of Structures 5
MH 263 Anal. Geom. & Cal. 5	CE 201 Surveying .....5	EC 212 Intr. Accounting .....5
PS 206 Physics .....5	Elective .....5	Elective .....5
IL 104 Sheet Metal	IL 101 Woodworking .....1	IL 102 Welding Science
Des. & Fab. ....1	MS Military Training ....1	& Application .....1
MS Military Training ....1	PE Physical Education ....1	MS Military Training ....1
PE Physical Education ....1		PE Physical Education ....1
THIRD YEAR		
BT 321 Constr. Prob. I .....5	PA 307 Scientific Reasoning 5	EC 445 Indus. Relations or
Group Elective .....5	Group Elective .....5	Labor Problems .....5
BT 311 Structures I .....3	BT 312 Structures II .....3	Group Elective .....5
BT 367 History of Bldg. I ....3	BT 368 Hist. of Bldg. II ....3	BT 313 Structures III .....3
Adv. ROTC or	Adv. ROTC or	BT 369 Hist. of Bldg. III ....3
Elective .....3	Elective .....3	Adv. ROTC or
		Elective .....3
FOURTH YEAR		
BT 433 Constr. Methods	BT 434 Constr. Methods and	BT 490 Building Const.
& Estimating I .....5	Estimating II .....5	Thesis .....7
BT 422 Constr. Prob. II .....5	BT 412 Structures V .....3	BT 453 Bldg. Equipment II 3
BT 411 Structures IV .....3	BT 452 Bldg. Equipment I ....3	Technical Elective ....5
Elective .....3	Group Elective .....5	Adv. ROTC or
Adv. ROTC or	Adv. ROTC or	Elective .....3
Elective .....3	Elective .....3	

Total—220 quarter hours

Note: Five-hour elective courses will be chosen from the group electives in Economics, English, Foreign Languages, History, Psychology, Sociology, Speech, and Town Planning.

Note: Three-hour elective courses taken in lieu of Advanced ROTC will be chosen from the following: Art, Economics, English, History, Music, Philosophy, and Religion.

GROUP ELECTIVES

For students in Building Construction

BT 521-2-3 Advanced Structures I-II-III	EH 357-8 Survey of American Literature
EC 305 Geography of North America	EH 361 History of the English Drama
EC 323 Real Estate	EH 363-4 Eighteenth Century English Literature
EC 341 Business Law	EH 371 The American Short Story
EC 345 Statistics	EH 372 The American Novel
EC 357 Economic History of Europe	EH 390 Advanced Composition
EC 358 Economic History of the U.S.	EH 410 European Literature
EC 402 American Industries	EH 450 Contemporary Poetry
EC 442 Personnel Management	EH 451-2 Shakespeare
EC 452 Comparative Economic Systems	EH 457 Victorian Literature
EC 460 Economic Development of the South	EH 459 Poetry and Prose of the Elizabethan Period
EC 475 Economics of Public Utilities	EH 481-2 English Novel
EH 253-4 Literature in English	EH 491 American Poetry
EH 352 Contemporary Fiction	
EH 353 Contemporary Drama	

FL 121-2-221 French
 FL 131-2-231 Spanish
 FL 241-2-341 Italian
 FL 151-2-251 German
 HY 311 Medieval History
 HY 314 United States Colonial History
 HY 404-5 Recent United States History
 HY 406 The Civil War and Reconstruction
 HY 408 United States Political Parties
 HY 427 The Reformation Era, 1500-1660
 HY 428 The Age of Reason, 1660-1789
 HY 429 The Age of Revolutions, 1789-1870
 HY 430 History of Europe from Bismarck
 through the First World War
 HY 431 History of Europe Since the Treaty
 of Versailles
 HY 451 The Far East
 HY 452 History of Colonial Latin America

HY 453 History of Latin America in the Na-
 tional Period
 HY 460 Great Leaders of History
 HY 482 History of the South
 PA 325 Aesthetics
 PA 420 Modern Philosophy
 PG 211 General Psychology
 PG 330 Social Psychology
 PO 206 United States Government
 PO 209 National Government
 SP 231 Essentials of Public Speaking
 SY 201 Introductory Sociology
 SY 301 Sociology of the Family
 SY 304 Race and Culture
 SY 401 Population Problems
 SY 402 Social Theory
 SY 403 Regional Sociology
 SY 405 Urban Sociology
 SY 408 Industrial Sociology

Students who desire to take a second degree in Civil Engineering after graduation in Building Construction can do so in a minimum of four quarters, by substituting in the Building Construction curriculum Physics 201, 202, 203 in place of Physics 205, 206; and by taking Surveying 203 and Chemistry 103-103L, and 104-104L. By using electives and by carrying a one or two hour overload in some quarters, these substitutions and additions need not prolong the completion of the requirements for the Building Construction degree beyond the normal length of 12 quarters.

The additional training to be obtained from this extra work in Civil Engineering will provide strong supplementary skills for any member of the building industry.

Master of Building Construction

Students holding the degree of Bachelor of Building Construction are eligible to apply to the Dean of the Graduate School for admission to the graduate course leading to the degree of Master of Building Construction. The candidate must complete satisfactorily the following curriculum, or its equivalent, as approved by the Dean of the Graduate School, totaling 60 quarter hours.

CE 407 Municipal Engineering	5
EC 434 Purchasing	5
EC 450 Job Evaluation and Incentive Systems.....	5
BT 605-6-7 Graduate Research in Building.....	15
BT 621-2-3 Graduate Construction Design.....	15
CE 630 Advanced Stress Analysis.....	5
BT 699 Research and Thesis.....	10

Department of Drama

The courses in Drama offer to those interested in the various aspects of the theatre a well-balanced combination of theoretical study and practical work in play production, acting, and stagecraft. Class work is closely associated with the university dramatic group, the Auburn Players. Students in all courses with laboratory are expected to participate in the production of plays. Much attention is given to those who intend to direct dramatic work in schools and little theatres.

For the layman who desires an appreciative understanding of the theatre, all drama offerings at the Freshman and Sophomore levels, Drama Apprecia-

tion I and II, and the general course in Theatre Work, Dramatics, may be elected. Students from all Schools are welcomed to tryouts for plays. For the student wishing to major in Drama, a full program of courses is offered leading to the Bachelor of Arts degree, with options in Directing, Stagecraft, and Acting. Drama may be taken as a major or minor in directing in the School of Education (see page 100) or as a minor in any of the three options in the School of Science and Literature (see page 149). Attendance at student convocations each Tuesday is compulsory.

Curriculum in Drama (DR)

Directing Option

FIRST YEAR

FIRST QUARTER	SECOND QUARTER	THIRD QUARTER
EH 101 English Comp. ....5	EH 102 English Comp. ....5	PG 211 Psychology .....5
FL 121 Elemen. French* .5	FL 122 Elementary French* 5	FL 221 Inter. French* .....5
DR 104 Drama, Production .3	DR 105 Act. & Stage Tech. 3	DR 106 Drama, Production .3
DR 101 Intr. to the Arts ....1	DR 102 Intr. to the Arts ....1	DR 103 Intr. to the Arts ....1
DR 107 Theatre Literature .1	DR 108 Theatre Literature .1	DR 109 Theatre Literature .1
MS Military Training ....1	MS Military Training ....1	MS Military Training ....1
PE Physical Education .1	PE Physical Education .1	PE Physical Education .1

SECOND YEAR

EH 253 Lit. in English .....5	EH 254 Lit. in English .....5	HY 208 World History .....5
SP 220 Interp. Reading .....5	HY 207 World History .....5	SY 201 Intr. to Sociology .5
DR 204 Drama, Production .3	DR 205 Drama, Production .3	DR 206 Drama, Production .3
DR 201 Theatre Literature .2	DR 202 Theatre Literature .2	DR 203 Theatre Literature .2
MS Military Training ....1	MS Military Training ....1	MS Military Training ....1
PE Physical Education .1	PE Physical Education .1	PE Physical Education .1

THIRD YEAR

AT 338 Art, History I .....5	AT 339 Art History II .....5	EH 452 Shakespeare .....5
EH 410 European Literature 5	EH 451 Shakespeare .....5	DR 306 Drama, Prod.*.3
DR 304 Drama, Prod.** .3	DR 305 Drama, Prod.** .3	MU Music Elective .....3
MU 373 Apprec. of Music .3	MU 374 Masterpieces of Music .....3	DR 303 Theatre Literature .2
DR 301 Theatre Literature .2	DR 302 Theatre Literature .2	Elective .....5

FOURTH YEAR

DR 404 Drama, Prod.** .3	DR 405 Drama, Prod.** .3	DR 406 Drama, Prod.** .3
DR 401 Theatre Literature .2	DR 402 Theatre Literature .2	DR 403 Theatre Literature .2
Elective .....5	Elective .....5	Elective .....5
Elective .....5	Elective .....5	Elective .....5
General Elective .3	General Elective .3	General Elective .3

Total—210 quarter hours

* Another language may be substituted with the approval of the Department Head.

** DR 307, 8, 9; 407, 8, 9—Design and Technical Option.

** DR 310, 11, 12; 410, 11, 12—Advanced Acting Option.

Department of Music

The Department of Music provides instruction and performing experience to students interested in developing their talents in music. The courses of study provided by the Department have been created to present a balance between creative skills and academic studies, allowing at the same time a certain flexibility to meet individual requirements.

The Department of Music offers to the Music major a professional curriculum leading to the degree Bachelor of Music, with majors in (A) Applied Music, (B) Theory and Composition, (C) Church Music. These programs

provide preparation for the professional field of performance and for private or college teaching of applied music, theory, and composition. They also provide training for church organists and choir directors.

For the student wishing to major in Music History and Literature, the Department of Music offers a program of studies leading to the Bachelor of Arts degree. This degree is a cultural, not a professional degree.

The Department of Music offers a group of general elective courses of interest and value to all University students that they may acquaint themselves with music as one aspect of a liberal culture either as appreciative listeners or as trained participants. Courses in Applied Music consist of individual instruction in voice and in the playing of the piano, violin, organ, 'cello, and all woodwind and brass instruments. Courses in ensemble playing, band, orchestra, glee clubs, choir, and opera workshop are also offered to students in all curricula.

Professional Curriculum in Music (MU)

(A) Applied Music Major

FIRST YEAR

FIRST QUARTER

DR 101	Intr. to the Arts	...1
EH 101	English Comp.	...5
MU 131	Music Theory I	...3
MU 151	Survey of Mu. Lit.	...1
MU	Major Instrument	...3
MU	*Minor Instrument	...1
MU	Perf. Group	...1
MU	Ensemble	...1
MS	Military Training	...1
PE	Physical Education	...1

SECOND QUARTER

DR 102	Intr. to the Arts	...1
EH 102	English Comp.	...5
MU 132	Music Theory II	...3
MU 152	Survey of Mu. Lit.	...1
MU	Major Instrument	...3
MU	*Minor Instrument	...1
MU	Perf. Group	...1
MU	Ensemble	...1
MS	Military Training	...1
PE	Physical Education	...1

THIRD QUARTER

DR 103	Intr. to the Arts	...1
HY 107	United States Hist.	...5
MU 133	Music Theory III	...3
MU 153	Survey of Mu. Lit.	...1
MU	Major Instrument	...3
MU	*Minor Instrument	...1
MU	Perf. Group	...1
MU	Ensemble	...1
MS	Military Training	...1
PE	Physical Education	...1

SECOND YEAR

EH 253	English Lit.	...5
MU 231	Music Theory IV	...3
MU 251	Survey of Mu. Lit.	...1
MU	Major Instrument	...3
MU	Minor Instrument	...1
MU	Perf. Group	...1
MU	Ensemble	...1
MS	Military Training	...1
PE	Physical Education	...1

EH 254	English Lit.	...5
MU 232	Music Theory V	...3
MU 252	Survey of Mu. Lit.	...1
MU	Major Instrument	...3
MU	Minor Instrument	...1
MU	Perf. Group	...1
MU	Ensemble	...1
MS	Military Training	...1
PE	Physical Education	...1

HY 208	World History	...5
MU 233	Music Theory VI	...3
MU 253	Survey of Mu. Lit.	...1
MU	Major Instrument	...3
MU	Minor Instrument	...1
MU	Perf. Group	...1
MU	Ensemble	...1
MS	Military Training	...1
PE	Physical Education	...1

THIRD YEAR

FL	Foreign Language	...5
MU 334	Counterpoint I	...3
MU 351	Music History I	...3
MU	Major Instrument	...3
MU	Ensemble	...1
	Elective	...3

FL	Foreign Language	...5
MU 335	Counterpoint II	...3
MU 352	Music History II	...3
MU	Major Instrument	...3
MU	Ensemble	...1
	Elective	...3

FL	Foreign Language	...5
MU 336	Counterpoint III	...3
MU 353	Music History III	...3
MU	Major Instrument	...3
MU	Ensemble	...1
	Elective	...3

FOURTH YEAR

MU 337	Arranging	...3
MU 431	Music Analysis	...3
MU	Major Instrument	...3
MU	Ensemble	...1
	Elective	...5
	Elective	...3

MU 432	Music Analysis	...3
EC 200	Gen. Economics	...5
MU	Major Instrument	...3
MU	Ensemble	...1
MU	Applied Pedagogy	...3
	Elective	...3

SY 201	Intr. Sociology	...5
MU 361	Conducting	...3
MU	Applied Lit.	...3
MU	Major Instrument	...3
MU	Ensemble	...1
	Elective	...3

* Minor instrument must be piano for non-piano majors.

Total—213 quarter hours

(B) Theory and Composition Major

FIRST YEAR

FIRST QUARTER

DR 101	Intr. to the Arts	...1
EH 101	English Comp.	...5
MU 131	Music Theory I	...3
MU 181	Applied Piano	...2
MU 151	Survey of Mu. Lit.	...1
MU 116	Woodwind Class	...1
MU 110	String Class	...1
MU	Perf. Group	...1
MU	Ensemble	...1
MS	Military Training	...1
PE	Physical Education	...1

SECOND QUARTER

DR 102	Intr. to the Arts	...1
EH 102	English Comp.	...5
MU 132	Music Theory II	...3
MU 182	Applied Piano	...2
MU 152	Survey of Mu. Lit.	...1
MU 117	Woodwind Class	...1
MU 111	String Class	...1
MU	Perf. Group	...1
MU	Ensemble	...1
MS	Military Training	...1
PE	Physical Education	...1

THIRD QUARTER

DR 103	Intr. to the Arts	...1
HY 107	United States Hist.	...5
MU 133	Music Theory III	...3
MU 183	Applied Piano	...2
MU 153	Survey of Mu. Lit.	...1
MU 118	Woodwind Class	...1
MU 112	String Class	...1
MU	Perf. Group	...1
MU	Ensemble	...1
MS	Military Training	...1
PE	Physical Education	...1

SECOND YEAR

EH 253	English Lit.	...5
MU 231	Music Theory IV	...3
MU 281	Applied Piano	...2
MU 251	Survey of Mu. Lit.	...1
MU 107	Voice Class	...1
MU 113	Brass Class	...1
MU	Perf. Group	...1
MU	Ensemble	...1
MS	Military Training	...1
PE	Physical Education	...1

EH 254	English Lit.	...5
MU 232	Music Theory V	...3
MU 282	Applied Piano	...2
MU 252	Survey of Mu. Lit.	...1
MU 108	Voice Class	...1
MU 114	Brass Class	...1
MU	Perf. Group	...1
MU	Ensemble	...1
MS	Military Training	...1
PE	Physical Education	...1

HY 208	World History	...5
MU 233	Music Theory VI	...3
MU 283	Applied Piano	...2
MU 253	Survey of Mu. Lit.	...1
MU 119	Percussion Class	...1
MU 115	Brass Class	...1
MU	Perf. Group	...1
MU	Ensemble	...1
MS	Military Training	...1
PE	Physical Education	...1

THIRD YEAR

FL	Foreign Language	...5
MU 334	Counterpoint I	...3
MU 351	Music History I	...3
MU 331	Modern Harmony	...3
MU 381	Applied Piano	...1
	Elective	...3

FL	Foreign Language	...5
MU 335	Counterpoint II	...3
MU 352	Music History II	...3
MU 454	Instrumental Lit.	...3
MU 382	Applied Piano	...1
	Elective	...3

FL	Foreign Language	...5
MU 336	Counterpoint III	...3
MU 353	Music History III	...3
MU 361	Conducting	...3
MU 383	Applied Piano	...1
	Elective	...3

FOURTH YEAR

MU 431	Music Analysis	...3
MU 434	Composition I	...3
MU 437	Orchestration I	...3
MU 481	Applied Piano	...1
	Elective	...5
	Elective	...3

MU 432	Music Analysis	...3
MU 435	Composition II	...3
MU 438	Orchestration II	...3
MU 482	Applied Piano	...1
EC 200	Gen. Economics	...5
	Elective	...3

SY 201	Intr. Sociology	...5
MU 436	Composition III	...3
MU 439	Orchestration III	...3
MU 483	Applied Piano	...1
MU 445	Theory Pedagogy	...3
	Elective	...3

Total—213 quarter hours

(C) Church Music Major

Organ or Voice Applied Medium

FIRST YEAR

FIRST QUARTER

DR 101	Intr. to the Arts	...1
EH 101	English Comp.	...5
MU 131	Music Theory I	...3
MU	Major Instrument	...3
MU 151	Survey of Mu. Lit.	...1
MU	*Minor Instrument	...1
MU	Perf. Group	...1
MU	Ensemble	...1
MS	Military Training	...1
PE	Physical Education	...1

SECOND QUARTER

DR 102	Intr. to the Arts	...1
EH 102	English Comp.	...5
MU 132	Music Theory II	...3
MU	Major Instrument	...3
MU 152	Survey of Mu. Lit.	...1
MU	Minor Instrument	...1
MU	Perf. Group	...1
MU	Ensemble	...1
MS	Military Training	...1
PE	Physical Education	...1

THIRD QUARTER

DR 103	Intr. to the Arts	...1
HY 107	American History	...5
MU 133	Music Theory III	...3
MU	Major Instrument	...3
MU	Minor Instrument	...3
MU 153	Survey of Mu. Lit.	...1
MU	Perf. Group	...1
MU	Ensemble	...1
MS	Military Training	...1
PE	Physical Education	...1

SECOND YEAR

EH 253	English Lit.	...5
MU 231	Music Theory IV	...3
MU	Major Instrument	...3
MU 251	Survey of Mu. Lit.	...1
MU	Minor Instrument	...1
MU	Perf. Group	...1
MU	Ensemble**	...1
MS	Military Training	...1
PE	Physical Education	...1

EH 254	English Lit.	...5
MU 232	Music Theory V	...3
MU	Major Instrument	...3
MU 252	Survey of Mu. Lit.	...1
MU	Minor Instrument	...1
MU	Perf. Group	...1
MU	Ensemble	...1
MS	Military Training	...1
PE	Physical Education	...1

HY 208	World History	...5
MU 233	Music Theory VI	...3
MU	Major Instrument	...3
MU 253	Survey of Mu. Lit.	...1
MU	Minor Instrument	...1
MU	Perf. Group	...1
MU	Ensemble	...1
MS	Military Training	...1
PE	Physical Education	...1

* Minor instrument for voice major would be organ and vice versa—six quarters required.

** Service playing takes place of ensemble for organ students.

THIRD YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
FL	Foreign Language .5	FL	Foreign Language .5	FL	Foreign Language .5
MU 351	Music History I .3	MU 352	Music History II .3	MU 353	Music History III .3
MU 334	Counterpoint I .3	MU 335	Counterpoint II .3	MU 336	Counterpoint III .3
MU	Major Instrument .3	MU	Major Instrument .3	MU	Major Instrument .3
MU 312	Hymnology .3	MU 311	Liturgies .3	MU	Ensemble .1
MU	Ensemble .1	MU	Ensemble .1	MU	Elective .3

FOURTH YEAR

MU 431	Music Analysis .3	EC 200	Gen. Economics .5	SY 201	Intr. Sociology .5
MU	Major Instrument .3	MU 432	Music Analysis .3	MU	Major Instrument .3
MU 381	Conducting .3	MU	Major Instrument .3	MU 453	Choral Lit. .3
MU	Ensemble .1	MU 415	Organ Design & Lit.*** .3	MU	Ch. Music Seminar .3
	Elective .5	MU	Ensemble .1	MU	Ensemble .1
	Elective .3	MU 362	Choral Conducting .1		Elective .3
			Elective .2		

*** Vocal Pedagogy for voice students.

Total—215 quarter hours

Bachelor of Arts

FIRST YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
DR 101	Intr. to the Arts .1	DR 102	Intr. to the Arts .1	DR 103	Intr. to the Arts .1
EH 101	English Comp. .5	EH 102	English Comp. .5	FL	Foreign Language .5
FL	Foreign Language .5	FL	Foreign Language .5	HY 107	United States Hist. 5
MU 131	Music Theory I .3	MU 132	Music Theory II .3	MU 133	Music Theory III .3
MU 151	Survey of Mu. Lit. .1	MU 152	Survey of Mu. Lit. .1	MU 153	Survey of Mu. Lit. .1
MU	Applied Music .2	MU	Applied Music .2	MU	Applied Music .2
MS	Military Training .1	MS	Military Training .1	MS	Military Training .1
PE	Physical Education .1	PE	Physical Education .1	PE	Physical Education .1

SECOND YEAR

EH 253	English Lit. .5	EH 254	English Lit. .5	EC 200	Gen. Economics .5
HY 207	World History .5	HY 208	World History .5	SY 201	Intr. Sociology .5
MU 231	Music Theory IV .3	MU 232	Music Theory V .3	MU 233	Music Theory VI .3
MU 251	Survey of Mu. Lit. .1	MU 252	Survey of Mu. Lit. .1	MU 253	Survey of Mu. Lit. .1
MU	Applied Music .2	MU	Applied Music .2	MU	Applied Music .2
MS	Military Training .1	MS	Military Training .1	MS	Military Training .1
PE	Physical Education .1	PE	Physical Education .1	PE	Physical Education .1

THIRD YEAR

MU 351	Music History I .3	MU 352	Music History II .3	MU 353	Music History III .3
MU 334	Counterpoint I .3	**Science or Math. .5		MU 451	Music Literature .3
PG 211	Gen. Psychology .5	*Minor .5		*Minor .5	
	*Minor .5	Elective .5		Elective .5	

FOURTH YEAR

MU 365	Arranging .3	MU 432	Music Analysis .3	AT 331	His. Ptg. & Sculp. .5
MU 431	Analysis .3	MU 453	Music Literature .3	MU 361	Conducting .3
MU 452	Music Literature .3	*Minor .5		MU 454	Music Literature .3
	*Minor .5	Elective .6		*Minor .5	
	Elective .3			Elective .2	

Total—213 quarter hours

* Two minors of 15 quarter hours each will be elected from approved courses in foreign languages and history. Except for foreign languages, subjects must be numbered 200 or above.

** One of the following courses must be selected: PS 204, BY 201, ZY 101, MH 107, MH 181.

Supplementary Requirements for all Bachelor of Music and Bachelor of Arts Degrees

1. Attendance at campus music functions and student convocations is compulsory. Absences may be excused only by the Head of the Music Department.

2. At the end of the Sophomore year a comprehensive examination will be given which must be passed before the student is admitted to the upper division music courses.

3. A. Students electing the applied music major must present a junior and senior recital during the third year of study and a senior recital during the fourth year of study. The music for this recital will be performed from memory.

B. Students electing the theory and composition major must present an original composition in small form during the third year of study and an original composition in large form during the fourth year of study.

C. Students electing the history and literature major must present a written thesis during the fourth year of study.

D. Students electing the church music major must present a senior recital during the fourth year of study.

4. Credit in applied music is based on the amount of practice, each credit hour requiring a minimum of five hours practice per week.

5. Students whose major performing medium is not piano or organ must elect piano as the minor instrument. Before graduation all students must meet minimum Sophomore NASM applied music requirements in piano.

6. Participation in an approved music performing group is required each quarter, with or without credit.

7. All students taking applied music must meet public performance requirements as designated by the faculty. (See Music Dept. special regulations regarding requirements for student public and convocation performances.)

Music Education

For the student wishing to become a teacher of music, the Department of Music offers a full program of studies in conjunction with the School of Education leading toward certification by the State Department of Education.

Program for Minor in Music

School of Education, see page 100

Program for Major in Music

School of Education, see page 100

Program for Composite Major-Minor in Music

School of Education, see page 100

Supplementary Requirements for Music Majors and Minors

1. Music Majors and Minors are required to participate in the work of music performance groups (concert choir, band, or orchestra).

2. Attendance and performances at student convocations each Wednesday are compulsory for Music Majors.

Music Organizations

The several musical organizations, sponsored by the University and directed by the Department of Music, provide excellent training in group music. See

index under "Music Organizations." These activities, which are open to students of the University, may be taken without credit, or offered as general elective credit.

Graduate Work in Music

Students who hold a baccalaureate degree in Education with a Major in Music are eligible to apply to the Dean of the Graduate School for admission to the graduate courses leading to the degrees Master of Science and Master of Education with Major in Music. The candidate must complete satisfactorily the following curriculum totaling 45 quarter hours.

Education and Foundation Courses.....	15
Music and Music Education Courses.....	30

School of Chemistry

CHARLES RICHARD SAUNDERS, *Dean*

THE SCHOOL OF CHEMISTRY offers four-year curricula leading to the degrees of Bachelor of Science in Chemistry, Chemical Engineering, and Laboratory Technology, and advanced work leading to the degrees Master of Science in Chemistry, and Chemical Engineering and to the degree Doctor of Philosophy in Chemistry.

The administrative office is located in the Chemistry Building of the Physical Science Center. The Department of Chemical Engineering occupies approximately one-fourth of Wilmore Engineering Laboratory and the basement of Ross Chemical Laboratory. These two buildings are conveniently located with respect to each other and provide modern and adequate facilities.

Department of Chemistry

The curriculum in chemistry meets the standards of the accrediting committee of the American Chemical Society. It prepares and trains students desiring careers in both pure and applied chemistry.

Training is offered in the fundamentals of the science together with advanced courses in chemistry and physics. General electives are selected from fields especially for their cultural value. All electives must be approved by the dean.

Mathematics 160, 121 or 107 must be satisfactorily completed before, or taken concurrently with, General Chemistry 103 or 111.

Curriculum in Chemistry (CH)

FRESHMAN YEAR					
FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
CH 111	General Chemistry .5	CH 112	General Chemistry .5	CH 113	General Chemistry .5
EH 101	English Comp. ....5	EH 102	English Comp. ....5	HY 107	United States Hist. 5
*MH 160	Algebra & Trig. .5	MH 161	Anal. Geometry and Calculus .....5	MH 162	Analytic Geometry & Calculus .....5
**LY 101	Library Science .1	MS	Military Training ....1	MS	Military Training ....1
MS	Military Training ....1	PE	Physical Education .1	PE	Physical Education .1
PE	Physical Education .1				
SOPHOMORE YEAR					
CH 204	Analytical Chem. ....5	CH 205	Analytical Chem. ....5	CH 303	Organic Chemistry .5
MH 263	Analytic Geometry & Calculus .....5	MH 264	Analytic Geometry & Calculus .....5	MH 361	Differential Equa. .5
PS 201	Physics-Mechanics .5	PS 202	Physics-Heat, Sound & Light .....5	PS 203	Physics-Elec. & Magnetism .....5
MS	Military Training ....1	MS	Military Training ....1	MS	Military Training ....1
PE	Physical Education .1	PE	Physical Education .1	PE	Physical Education .1
JUNIOR YEAR					
CH 304	Organic Chemistry 5	CH 305	Organic Chemistry .5	CH 409	Physical Chemistry 5
CH 407	Physical Chemistry 5	CH 408	Physical Chemistry .5	FL 251	Intern. German I or
FL 151	Elem. German I or	FL 152	Elem. German II or	FL 271	Intern. Russian I .5
FL 171	Elem. Russian I ....5	FL 172	Elem. Russian II ....5	PS 305	Modern Physics .....5
	Elective .....3		Elective .....3		Elective .....3

* Students not qualified to take MH 160 are required to take MH 121-122. Only five (5) of these hours will be acceptable towards graduation in lieu of MH 160.

** LY 101 Library Science may be scheduled in any quarter of the freshman year.

SENIOR YEAR

FIRST QUARTER

CH 404	Organic Analysis (Qualitative)	5
CH 410	Interm. Inorganic Chemistry	5
	Electives	8

SECOND QUARTER

CH 411	Intermediate Inor- ganic Chemistry	5
CH 412	Chemical Thermo- dynamics	5
EH 390	Adv. Composition ..	5
	Elective	3

THIRD QUARTER

CH 413	Anal. Chemistry	5
PS 304	Spectroscopy	5
	Electives	8

Total—211 quarter hours

Women students will take Hygiene in the freshman year and Current Events in the sophomore year in lieu of Military Training.

Advanced military training may be substituted for the three hour humanistic electives in the junior and senior years. Students will be certified to the American Chemical Society as "Certified Graduates" when they have made up the electives for which advanced military training was substituted.

APPROVED ELECTIVES

PO 208	United States Government	5	SP 211	Public Speaking	5
PO 210	State Government	5	EH 253	Literature in English	5

The following alternative curriculum may be selected by those students interested in the biological sciences.

Alternate Curriculum in Chemistry (CH)

(BIOCHEMISTRY OPTION)

FIRST QUARTER

CH 111	General Chemistry ..	5
EH 101	English Comp.	5
*MH 160	Algebra & Trig.	5
*LY 101	Library Science ..	1
MS	Military Training ..	1
PE	Physical Education ..	1

FRESHMAN YEAR

SECOND QUARTER

CH 112	General Chemistry ..	5
EH 102	English Comp.	5
MH 161	Analytic Geometry & Calculus	5
MS	Military Training ..	1
PE	Physical Education ..	1

THIRD QUARTER

CH 113	General Chemistry ..	5
MH 162	Analytic Geometry & Calculus	5
ZY 101	General Zoology	5
MS	Military Training ..	1
PE	Physical Education ..	1

SOPHOMORE YEAR

CH 204	Analytical Chem.	5
MH 263	Analytic Geometry & Calculus	5
ZY 102	General Zoology	5
MS	Military Training ..	1
PE	Physical Education ..	1

CH 205	Analytical Chem.	5
MH 264	Analytic Geometry & Calculus	5
PS 201	Physics Mechanics ..	5
MS	Military Training ..	1
PE	Physical Education ..	1

CH 303	Organic Chemistry ..	5
PS 202	Physics-Heat, Sound & Light	5
ZY 301	Compar. Anatomy ..	5
MS	Military Training ..	1
PE	Physical Education ..	1

JUNIOR YEAR

CH 304	Organic Chemistry ..	5
CH 407	Physical Chemistry ..	5
PS 203	Physics-Elec. & Magnetism	5
	Elective	3

CH 305	Organic Chemistry ..	5
CH 408	Physical Chemistry ..	5
ZY 424	Animal Physiology ..	5
	Elective	3

CH 409	Physical Chemistry ..	5
EH 390	Adv. Composition ..	5
VM 200	Gen. Microbiology ..	5
	Elective	3

SENIOR YEAR

CH 418	Biochemistry	5
FL 151	Elem. German I or	
FL 171	Elem. Russian I	5
	Electives	8

CH 419	Biochemistry	5
FL 152	Elem. German II or	
FL 172	Elem. Russian II	5
	Electives	8

CH 420	Biochemistry	5
FL 251	Interm. German I or	
FL 271	Interm. Russian I	5
	Electives	8

Total—211 quarter hours

Note: Advanced military training may be substituted for the three hour humanistic electives in the junior and senior years.

* Students not qualified to take MH 160 are required to take MH 121-122. Only five (5) of these hours will be acceptable towards graduation in lieu of MH 160.

** LY 101 Library Science may be scheduled in any quarter of the freshman year.

APPROVED ELECTIVES

HY 107	United States History	5	SP 211	Public Speaking	5
PO 208	United States Government	5	EH 253	Literature in English	5
PO 210	State Government	5			

Department of Chemical Engineering

The rapidly growing chemical industry in the southern region, and more particularly in Alabama, is providing exceptional opportunities for chemical engineering graduates to obtain employment in familiar surroundings and to contribute to the economy and well-being of the state.

Simply stated, the chemical engineer is responsible for producing a chemical product. This may be an individual compound such as an acid, a base or a gas or it may be an industrial product such as paper, synthetic fibers, polymers, fertilizers, various agricultural chemicals, petro-chemicals or petroleum products.

The program leading to the bachelor's degree in chemical engineering consists almost entirely of broad scientific and engineering principles which have numerous applications in the chemical and related industries. Those students who elect to continue their education through one or more advanced degrees are qualified for better positions and often make more rapid progress than those with only the bachelor's degree.

The broad university training provided, when supplemented by professional experience, enables graduates to qualify for positions as engineers, in production, research and development, sales engineering, plant design and management.

The curriculum in chemical engineering is offered under both the regular and the co-operative plan. See the Co-operative Education program on page 54.

Curriculum in Chemical Engineering (CN)

FIRST YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
CH 111	General Chemistry .5	CH 112	General Chemistry .5	CH 113	General Chemistry .5
EH 101	English Comp. ....5	EH 102	English Comp. ....5	MH 182	Anal. Geom. & Cal. 5
MH 160	Algebra & Trig. ....5	MH 161	Anal. Geom. & Cal. 5	HY 204	History of the
*LY 101	Use of the Library 1	CN 101	Chem. Engin.		Modern World .....3
MS	Military Training ....1		Fundamentals (I) ....1	MS	Military Training ....1
PE	Physical Education ..1	MS	Military Training ....1	PE	Physical Education ..1
		PE	Physical Education ..1		Humanistic Electives 3

SECOND YEAR

CH 206	Quant. Analysis ....3	MH 264	Anal. Geom. & Cal. 5	CH 303	Organic Chemistry .5
CH 206L	Quant. Analysis	PS 202	Physics-Heat,	MH 361	Differential Equa-
	Laboratory .....2		Sound & Light .....5		tions I .....5
MH 263	Anal. Geom. & Cal. 5	ME 205	Applied Mechanics 4	PS 203	Physics-Heat
PS 201	Physics-Mechanics ...5	CN 201	Chem. Engin.		& Magnetism .....5
CN 200	Digital Computers ..2		Fundamentals (II) ..3	CN 300	Process Calcula-
MS	Military Training ....1	MS	Military Training ....1		tions (I) .....3
PE	Physical Education ..1	PE	Physical Education ..1	MS	Military Training ....1
				PE	Physical Education ..1

THIRD YEAR

CN 301	Process Calcula-	CN 324	Fluid Mechanics ....4	CN 326	Heat Transfer .....3
	tions (II) .....3	CH 408	Physical Chemistry 5	CN 326L	Heat Transfer Lab. 2
CH 407	Physical Chemistry .5	ME 208	Strength of	SP 210	Public Speaking .....3
CH 304	Organic Chemistry .5		Materials .....4	CN 430	Computer Principles 2
MH 362	Engin. Math. ....5	EE 304	Electric Circuits ....4	CN 490	Applied Thermo-
	or	EH 304	Technical Writing ..3		dynamics .....5
MH 367	Math. Statistics .....5				Humanistic Electives 5
	or				
MH 460	Numerical Analysis 5				
ME 202	Materials of				
	Engineering .....3				

* LY 101 Library Science may be scheduled in any quarter of the freshman year.

FOURTH YEAR

FIRST QUARTER	SECOND QUARTER	THIRD QUARTER
CN 401 Chemical Engineering Economics ..2	CN 491 Kinetics .....4	CN 484 Chemical Engineering Plant Design ....4
CN 423 Unit Operations .....3	CN 424 Mass Transfer .....3	PS 305 Introduction to Modern Physics ....5
CN 423L Unit Oper. Lab. ..2	CN 424L Mass Transfer Lab. ....2	Humanistic Electives 5
CN 432 Instrumentation .....4	CN 437 Process Engineering 4	Technical Electives 5
CN 426 Engineering Metallurgy .....5	Technical Electives 5	
Humanistic Electives 3		

Total—229 quarter hours

Six hours of electives, mathematics, or Advanced ROTC, may be substituted for SP 210 (3 hours) and ME 202 Materials of Engineering (3 hours).

SUGGESTED ELECTIVES IN HUMANISTIC-SOCIAL STUDIES

EC 200 General Economics .....5	MU 373 Appreciation of Music .....3
EC 206 Socio-Econ Foundations .....3	MU 374 Masterpiece of Music .....3
EH 108 Classical Literature .....5	PA 301 Introduction to Philosophy .....3
EH 350 Shakespeare's Greatest Plays .....3	PA 302 Introduction to Ethics .....3
EH 365 Southern Literature .....3	PA 307 Scientific Reasoning .....5
HY 208 World History .....5	PA 420 Modern Philosophy .....5
HY 322 United States in World Affairs .....3	PG 311 The Behavior of Man .....3
HY 460 Great Leaders .....5	

TECHNICAL ELECTIVES (CN)

CN 202 Chem. Engineering Fundamentals II 5	CN 431 Computer Application .....2
CN 322 Chemical Process Industries .....4	CN 440 Nuclear Engineering .....5

Department of Laboratory Technology

Laboratory Technology Curriculum

This course is designed for men and women who wish to prepare themselves for clinical and other laboratory positions, such as public health, bacteriology, etc. With certain minor revisions, it can be used also as a preparation for the study of medicine or dentistry.

The curriculum is planned for regular students to schedule courses during the Fall, Winter and Spring quarters only. Transfers or freshmen may enter the course at any quarter and use the Summer quarter to fit themselves to the regular program. All who complete the curriculum satisfactorily are eligible to receive the degree Bachelor of Science in Laboratory Technology.

The majority of the graduates enter the field of clinical medicine as medical technologists. They should plan to attain status as Registered Medical Technologists which is accomplished by interning for one year in an approved hospital and then passing the National Registry of Medical Technologists' written examination. If then desired, the additional Bachelor of Science degree in Medical Technology will be granted. The four-year academic curriculum is recommended.

Medical Technology Curriculum

An alternate plan is available for those who plan to become medical technologists and who do not obtain the Bachelor of Science degree in Laboratory Technology. This plan leads to the Bachelor of Science degree in Medical Technology. To qualify, the student must take the first nine quarters of the curriculum, intern for one year in a hospital approved by the American Society

of Clinical Pathologists and by the Dean of the School of Chemistry, and pass the course work in the hospital and the National Registry examination. Further requirements are:

(1) The student must complete the first three years of the Laboratory Technology curriculum before interning in an approved hospital in order that the internship can be considered as fulfilling the senior year's residence requirements in lieu of the fourth year on campus.

(2) Auburn University students transferring into Medical Technology must have completed in the Laboratory Technology curriculum one academic year (54 quarter hours) preceding the year of internship.

(3) Students transferring from other institutions into Medical Technology must complete the second and third years of the Laboratory Technology curriculum on campus before interning.

Curriculum in Laboratory Technology (LT)

FRESHMAN YEAR

FIRST QUARTER

CH 103 General Chemistry	.4
CH 103L Gen. Chem. Lab.	.1
MH 121 College Math.	.5
ZY 101 General Zoology	.5
PE 111 Health Science	.1
PE Physical Education	.1
*LY 101 Library Science	.1

SECOND QUARTER

CH 104 General Chemistry	.4
CH 104L Gen. Chem. Lab.	.1
EH 101 English Comp.	.5
ZY 102 General Zoology	.5
PE 112 Health Science	.1
PE Physical Education	.1
LT 101 Orientation	.1

THIRD QUARTER

CH 105 General Chemistry	.3
CH 105L Gen. Chem. Lab.	.2
EH 102 English Comp.	.5
MH 122 College Math.	.5
PE 113 Health Science	.1
PE Physical Education	.1

* LY 101 Library Science may be scheduled in any quarter of the freshman year.

SOPHOMORE YEAR

CH 206 Quant. Analysis	.3
CH 206L Quant. Anal.	
Laboratory	.2
EH 141 Med. Vocabulary	.5
PS 205 Intr. Physics	.5
HY 205 Current Events	.1
PE Physical Education	.1

CH 207 Organic Chemistry	.5
PS 206 Intr. Physics	.5
VM 220 Human Anatomy	
& Physiology	.5
PE Physical Education	.1

CH 208 Organic Chemistry	.5
VM 200 General Micro-	
biology	.5
VM 221 Human Anatomy	
& Physiology	.5
HY 205 Current Events	.1
PE Physical Education	.1

JUNIOR YEAR

CH 418 Biochemistry	.5
LT 301 Hematology	.5
VM 204 Pathogenic Micro-	
biology	.5
Elective	.3

CH 419 Biochemistry	.5
LT 305 Serology	.5
ZY 411 General	
Parasitology	.5
Elective	.3

CH 420 Biochemistry	.5
HY 107 United States Hist.	.5
LT 401 Adv. Hematology	.5
Elective	.3

SENIOR YEAR

EH 345 Business & Pro-	
fessional Writing	.5
LT 421 Diagnostic	
Apparatus	.5
ZY 308 Micrology	.5
LT 402 Seminar	.3

SP 211 Essentials of	
Public Speaking	.5
PY 428 Public Health	.5
Group Elective	.5
Elective	.3

LT 405 Adv. Serology	.5
LT 422 Hospital Lab.	
Practice	.5
ZY 409 Histology	.5
Elective	.3

Total—211 quarter hours

APPROVED ELECTIVES

BY 101 General Botany	.5	FL 151 Elementary German I	.5
BY 102 General Botany	.5	FL 152 Elementary German II	.5
CY 102 Principles of Geography*	.5	PG 211 Introduction to Psychology	.5
EC 211 Introductory Accounting	.5	SA 111 Business Typewriting	.5
EC 212 Introductory Accounting	.5	SY 201 Introduction to Sociology	.5
FL 121 Elementary French I	.5	SY 301 Sociology of the Family	.5
FL 122 Elementary French II	.5	ZY 300 Genetics	.5

* Not open to juniors or seniors.

School of Education

TRUMAN M. PIERCE, *Dean*

ROBERT L. SAUNDERS, *Assistant Dean*

THE SCHOOL OF EDUCATION is accredited by the National Council for Accreditation of Teacher Education for the preparation of elementary and secondary teachers and school service personnel with the doctor's degree as the highest degree approved.

Professional preparation programs are provided for service in the fields of curriculum and teaching; administration, supervision, and guidance; and psychology. Since school service is a profession with various areas of activity, the School of Education provides training in specialized curricula on both the undergraduate and graduate levels. Undergraduate programs lead to the degrees of Bachelor of Science in Education and the Bachelor of Arts in Psychology. Programs administered by the Graduate School lead to the degrees of Master of Education, the Master of Science, Specialist in Education, and Doctor of Education.

Program and Degrees

Undergraduate

The Department of Vocational, Technical, and Practical Arts Education prepares teachers in vocational agriculture, industrial arts, and in technical education related to post secondary school programs and lead to the degree of Bachelor of Science in Education. Curricula include study in the liberal arts, specialization in the fields of agriculture, industrial arts, or other appropriate subject matter, psychology, educational theory and practice, and laboratory experiences. All curricula require a common core in professional and vocational education.

The Department of Elementary Education prepares teachers for elementary schools. This curriculum leads to the degree of Bachelor of Science in Education and includes study in the liberal arts, psychology, educational theory and practice, laboratory experiences, and provision for concentration of study in one or more subject-matter fields.

The Department of Foundations of Education provides a service function within the School of Education. Undergraduate and graduate courses which relate to the total educational enterprise and which are ordinarily included in the program of study of all students in teacher education are offered through this department. Courses in philosophy, sociology and history of education, and research and experimentation are offered.

The Department of Health, Physical Education, and Recreation prepares teachers of health and physical education. This curriculum leads to the degree of Bachelor of Science in Education and includes study in the liberal arts, psychology, educational theory and practice, laboratory experiences, and specialization in health and physical education.

The Department of Psychology has a liberal arts program which leads to the degree Bachelor of Arts. This curriculum prepares students for further

study in psychology at the graduate level and serves also as a liberal undergraduate education or as pre-professional preparation for medicine and the ministry.

The Department of Secondary Education prepares secondary school teachers. This curriculum leads to the degree Bachelor of Science in Education and includes study in the liberal arts, specialization in one or more teaching fields, psychology, educational theory and practice, and laboratory experiences. Fields of specialization include Art, Business Education, Dramatic Arts, English, Foreign Languages, Mathematics, Music, Science, School Library Science, Social Science, Speech, and Vocational Home Economics.

Graduate

Graduate programs are offered through the Graduate School in administration, supervision, and guidance; vocational, technical and practical arts education; elementary education; health, physical education and recreation; secondary education; and psychology. A graduate program is also available in school library service.

Fifth-year programs of study in these areas lead to the degrees of Master of Science and Master of Education.

Sixth-year programs in curriculum and teaching, and in administration, supervision, and guidance lead to the degree of Specialist in Education.

A doctoral program leading to the degree of Doctor of Education is offered in the areas of curriculum and teaching; and in administration, supervision and guidance. See Graduate School Bulletin.

Programs leading to the degrees of Master of Education, Master of Science in Education, Specialist in Education, and Doctor of Education are offered for junior college administrators, student personnel administrators and teachers. These programs meet requirements of the Southern Association of Colleges and Schools, the Graduate School and the School of Education. Sufficient flexibility exists to permit students to adapt programs to their individual needs. Course guides for each of the various programs are available in the Office of the Dean of Education.

Related Programs and Services

Teacher Certification Services

Programs in the School of Education are approved by the National Council for Accreditation of Teacher Education and the Alabama State Board of Education for certifying superintendents, supervisors, principals, guidance personnel, elementary and secondary teachers, and school librarians. Upon satisfactory completion of a prescribed course of study and upon recommendation of the Dean of the School of Education a professional certificate will be issued by the appropriate State Department of Education. Thirty State Departments of Education now have reciprocal agreements for issuing certificates to graduates of institutions accredited by NCATE.

Students in other areas of the University may take courses in education and psychology for acquiring knowledge and understanding of human growth and development, the history and purposes of education in America, and teaching as a profession. They are eligible to take all such courses for which they satisfy prerequisites except the internship in student teaching.

Students who do not take the full program of requirements for a professional certificate may qualify for a non-professional certificate which is valid for one year only and cannot be continued or reinstated.

For detailed requirements for the Professional Certificate (Ranks B, A, or AA), Non-Professional, Emergency Professional, and Trades and Industries Certificates, consult the Alabama State Department of Education Bulletin 1953, No. 7, available in the office of the Dean of the School of Education.

Student Personnel Services

Virada K. Schuessler, Coordinator

The Student Personnel Services Program of the School of Education assists the student in understanding the University and becoming a part of it, in identifying his strengths and limitations, in determining his professional goals, in selecting the proper curriculum in the University, and in securing employment upon graduation.

Recruitment. — Able young people are encouraged to consider teaching as a profession. Efforts of organizations such as the Future Teachers of America in the secondary schools and the Student National Education Association in colleges and of individuals and groups in the profession are aimed at seeking out, informing, and encouraging students.

Financial Aid. — Opportunities for financial aid are available in part-time employment and loans. One type of loan, the Student Loan Program financed by the National Defense Education Act, provides low-interest, long-term loan funds that are particularly attractive to School of Education students because of special provision for the prospective public school teacher. The NDEA provides that if a student goes into teaching in a public elementary or secondary school, up to 50 per cent of the principal (plus interest) of the loan may be cancelled.

Information and applications for NDEA loans, other financial aid, and employment may be obtained from the Office of Student Financial Aid.

Orientation. — The Orientation Program provides University personnel with an understanding of the student's background, individuality, and needs. It assists the student in obtaining information about the University and its programs, in learning more about himself, and in selecting professional goals that are compatible with his abilities. All freshmen participate from one to three quarters in an orientation program.

Counseling. — Each Education student is assigned to a faculty adviser who assists the student whenever possible. Other sources of assistance include personnel in the Office of the Dean, classroom teachers, personnel in the Student Counseling Service, the offices of the Dean of Women, the Dean of Student Affairs, the Registrar, dormitory head residents and counselors, and ministers of local churches.

Selection and Retention. — The selection and retention program is continuous. It inducts and retains students who show promise of success in teaching.

Students admitted as freshmen, who plan to prepare to teach, should enroll in the two-year pre-professional program in Education. The program consists

of 90 quarter hours of appropriate general education and other courses selected in relation to the student's professional objective. During the pre-professional program students are assisted through orientation, counseling, and regular courses to examine their strengths and limitations. They evaluate these in relation to the factors affecting academic and professional success.

Admission to a Teacher Education Curriculum.—Student must submit a written application to the Committee on Selection and Admission to Teacher Education. Students may make application no earlier than the quarter after which they have completed 85 quarter hours and should make application before they have earned a total of 100 quarter hours. Criteria of selection: evidence of adequate scholastic ability, grade point average of 1.0 (C) on all work earned that is applicable to pre-professional program, completion of curriculum requirement up to time of application, evidence of proficiency in English, satisfactory potential for teaching, and evidence of emotional stability and lack of undesirable personal characteristics.

Transfer students must apply for admission to teacher education as outlined above and must meet the criteria as outlined. All transfer students are expected to complete satisfactorily at least one quarter (minimum of 15 quarter hours) in the School of Education prior to making application for admission to teacher education.

At the end of the junior year students who have been admitted to teacher education must apply for admission to student teaching. Those applicants who meet the criteria will be admitted to student teaching.

Persons with degrees other than in education may make application for study in a curriculum leading to professional certification. Programs of study are available for earning the Class B and A Certificates and the master's degree. Often, work experiences in the teaching profession and other professional fields permit alternative plans for fulfilling the requirements in a particular program of study. Academic background and work experience are evaluated for purpose of developing the most effective program possible for each student.

Applications and specific information about the criteria of selection for admission to teacher education are available from the Student Personnel Office, 203 Thach Hall.

Placement and Follow-Up.—The Teacher Placement Service provides, free of charge, assistance to prospective teachers in locating desirable positions and assistance to employers in identifying candidates. Persons interested in placement should contact the Student Personnel Office, 203 Thach Hall. Follow-up studies of successes, failures, and problems of graduates are made. Further information may be obtained from the Coordinator of Student Personnel Services, 203 Thach Hall.

Field Services

*Wayne Teague, Coordinator**

James O. Williams, Interim Coordinator

Field Services constitute that phase of the work of the School of Education which is designed to make the programs and services of the School available to individuals and groups off campus. Field Services enable the School to combine its three major functions: instruction, research, and extension; and make

* On leave 1966-67.

them available to off-campus groups for continuous improvement of public education in the State and region. Major categories of services are available. These follow:

Off-Campus Instruction.—This instruction is available through the Field Laboratory Program, enabling teachers in service to complete a total of 16 quarter hours of residence credit toward a graduate degree. The program uses the local school setting as a laboratory in which graduate courses are provided as a framework for solving instructional problems related to various areas of study. The program may be used as a supplement to existing in-service programs or as a basis for developing such programs.

Short courses may also be offered on a non-credit basis for groups interested in specific areas of education and psychology. The courses may consist of a series of lectures or workshops and are available to groups of professional and non-professional personnel interested in short courses in some specific aspect of their work.

Educational Television.—Resources and materials of the School of Education are presented to Alabama citizens through the facilities of the Alabama Educational Television Network. Telecasts direct and enrich teaching programs for elementary and secondary school students, and assist teachers in their professional career development programs.

Further information regarding Educational Television at Auburn University is contained on page 9 of this Bulletin. A schedule of courses and specific course study guides may be obtained by writing the Director, Educational Television, Auburn University.

Lecture and Consultative Service.—The staff of the School of Education is composed of persons who are skilled in general and specific areas of education. The Office of Field Services coordinates the services of these faculty members for lecture and consultative services. These services may be used with in-service education, school and community projects, teacher workshops and institutes, and community clubs and organizations.

School Surveys.—School systems desiring comprehensive school surveys or surveys in specific areas of education such as school plant utilization and construction, school finance, administrative organization, and curriculum and teaching programs, may secure services of this type from the School of Education. Surveys may be conducted as separate projects or in conjunction with the Field Laboratory Program described above.

Research Services.—School systems may wish to conduct research in such areas as the instructional program, administrative and supervisory patterns and organization, school and community projects, the development and evaluation of testing programs, and the use of instructional materials and facilities. The assistance of the staff of the School of Education is available for these activities, either as separate endeavors or in conjunction with the instructional and survey services described above.

Correspondence Study.—Correspondence study provides undergraduate instruction for persons unable to attend college on a regular basis. Courses parallel to those given on campus are available in English, education, economics, health, physical education and recreation, history, mathematics, psychology, and sociology. Other courses may be added as the demand warrants.

All the courses carry college credit. For information concerning the Correspondence Study Program of Auburn University, see page 54 of this Catalog. For regulations governing the use of correspondence in programs of study at Auburn, see page 45.

Learning Resources Center

Marvin Dawson, Coordinator
Clara Szilassy, Instructor
Sharon Hill, Artist
Dan Kennedy, Technician

The Learning Resources Center of the School of Education contains an extensive collection of materials for teaching and learning. These resources complement the materials in the University Library. Varied in nature, they range from selected printed publications to graphic productions. Included are such materials of instruction as transparencies for projection, record players, tape recorders, overhead projection equipment and supplies, television receiving sets, and printed references.

The Learning Resources Center is a service center created primarily to improve instruction through effective use of appropriate materials. Personnel assists faculty and students in producing, selecting, and using these learning resources.

Education Interpretation Service.—A phase of the Learning Resources Center is the Education Interpretation Service. Devoted to better communication through the printed page, it aids public agencies and schools in improving their publications, publicity, and educational materials. It also provides readability analyses of textbooks, editorial services, and publication facilities.

In-Service Agricultural Education and Supervision

Thurston L. Faulkner, State Supervisor
Ben P. Dilworth, Howard W. Green, Paul B. Holley, A. H. Holcomb,
Homer N. Lewis, and Lewis L. Sellers, Assistant Supervisors

In cooperation with the State Department of Education, the School of Education maintains an in-service teacher education and supervisory division. This service extends to 345 departments of vocational agriculture in accredited high schools of the State and to more than 25 teachers of veterans.

Vocational Rehabilitation Service

Frank W. Jenkins and J. Hoyt Roberts, District Supervisors
Joseph R. Lambert, Counselor

The State Department of Education in cooperation with Auburn University maintains the local Rehabilitation Service which provides vocational guidance, counseling, training and placement services to handicapped citizens. The Rehabilitation Service also makes available to handicapped citizens such services as: surgical and/or medical care, hospitalization, therapeutic treatment and artificial appliances, when these services are essential to training and/or employment and the individual is not financially able to secure them.

Undergraduate Curricula For The Preparation Of Teachers

These materials set forth requirements and guides for the development of programs for students pursuing a teacher education curriculum. Requirements

for the pre-professional program, the program of professional education, and the fields of teaching specialization are stated. Listed also are total credit requirements, recommended courses, and provisions for electives in the different preparation programs.

Students who intend to teach should register in the School of Education when they enroll at Auburn. However, students from other divisions of the University and from other colleges who decide to teach may transfer to the School of Education at a later time. Graduates from two-year curricula of approved colleges normally enter the junior year.

Early registration in the School of Education clarifies the student's plans and strengthens his preparation for teaching. He should plan his program in conference with his adviser by the beginning of his sophomore year.

I. PRE-PROFESSIONAL REQUIREMENTS

The pre-professional program as outlined here partially fulfills the liberal arts requirement for students preparing to enter a teacher preparation program leading to professional certification as a teacher in elementary and/or secondary schools. A major portion of the pre-professional requirement will be completed prior to admission to the teacher education program.

EH 101-2 English Composition	10
*EH 253-54 Literature in English	10
MS Military Training (Men)	6
PE Physical Education (Men)	6
PE Physical Education (Women)	9
AT 342 Elem. School Art (Elementary majors only)	5
PG 213 Growth and Development of School Age Children	5
PG 214 Educational Psychology	5
SP 451 Prins. of Speech Correction (Elementary majors only)	5
MH 281 Fundamental Mathematics I or approved mathematics elective	5
MU 371 Intr. to Music (Elementary majors only)	3
102-3-4 Orientation	3

Social Science

Elementary Majors—Study in three or more fields selected from history, economics, political science, sociology and geography 35

Secondary Majors—Study in two or more fields selected from history, economics, political science, sociology and geography 20

Science

Physical 10

Biological 10

* Majors in health, physical education and recreation will take one course in speech instead of EH 254. Majors in agricultural education will take one course in speech and one course in journalism instead of EH 253-54.

II. PROFESSIONAL REQUIREMENTS

This phase of the teacher preparation program develops competence in the content of professional education. It adds depth of understanding and gives social meanings to the knowledge one possesses. It is concerned with the individual, the nature of society and the functions of education in society. Through the study of professional literature, observations, and actual experience in teaching, the student acquires knowledge regarding the history and philosophy of education, the administration and organization of schools, curriculum development, teaching and learning processes, learning resources, and the evaluation of teaching effectiveness.

A. Foundations of Education

This field of teacher preparation provides background information essential to effective participation in the teaching profession. Formal classwork includes an analysis of historical, philosophical, and sociological considerations upon which the educational enterprise is based. Pertinent concepts, principles, and understandings are applied to the operation of public school systems for evaluating the professional tasks associated with the education program.

Laboratory requirements are met, in part, by making planned observations in public schools near the campus and by active involvement in the work of an elementary or secondary school through the Pre-Teaching Field Experience. This experience, a prerequisite for student teaching, requires at least two weeks, involves the student in planning and evaluating learning experiences, counseling, participation in pre-school conferences and faculty study, school and community meetings, and actual teaching.

All students in the teacher preparation program will complete FED 200 Foundations of Education, 4 hours; FED 300 Principles and Practices in Education, 4; and FED 490 Evaluation in Education, 3.

B. Student Teaching 10 or 15 Quarter Hours

The Student Teaching Program provides students with a student teaching internship in an off-campus school situation. Experiences include personal and professional contacts with the different aspects of community life and making application of concepts, skills, and knowledge of classroom situations.

The program is organized on a quarter basis in which the regular student enrolls for 15 credit hours and devotes full time during the quarter to the experience. The program is divided into three phases: orientation, off-campus experience and evaluation. The student should have completed a large part of the work in both the major and minor areas of specialization prior to taking Student Teaching.

The Student Teaching Program for students with a major or minor in art; dramatic arts; health, physical education and recreation; industrial arts; music; speech and/or special education, including speech correction and mental retardation, requires experience in both elementary and secondary schools.

Students in either secondary or elementary education who complete a minor in school library science are required to devote a part of their student teaching to appropriate experiences in the school library.

Students who have had teaching experience or other related experiences may be permitted to satisfy the student teaching requirement through special student teaching programs which are offered in lieu of the regular Student Teaching Program. Such cases will be considered on an individual basis in terms of the student's previous experiences.

EED 425 Student Teaching in Elementary School

IED 425 Student Teaching in Elementary and Secondary Schools

PE 425 Student Teaching in Health and Physical Education in Elementary and Secondary Schools

SED 425 Student Teaching in Secondary School

VED 425 Student Teaching

(T) Industrial Arts in Elementary and Secondary Schools

(U) Agricultural Education

C. Teaching and Program

Study in this part of the teacher preparation program provides the student with knowledge, understanding, and skills associated with his field of teaching specialization. Specifically, these competencies are developed in relation to curriculum development, methodology, teaching and learning resources, and evaluation of teaching effectiveness. Each student in the teacher preparation program will complete the courses listed under the area of the school program in which he is preparing to teach.

1. Elementary Education

EED 329 Creative and Recreational Expression	6
EED 370 Teaching Elementary School Math	4
EED 421 Developing Understandings of the Natural and Social Environment	6
EED 371 Teaching Reading and Other Language Arts	6

2. Secondary Education

*SED 405 Teaching in Secondary School, or IED 414 Teaching in Elementary and Secondary Schools (Major Field)	3	SED 405 Teaching in Secondary School, or SED 410 Program in Secondary School (Minor Field)	3
		or	
		IED, PE, or VED 414 Teaching in Elementary and Secondary Schools, and	
*SED 410 Program in Secondary School, or IED 423 Program in Elementary and Secondary Schools (Major Field)	3	IED, PE, or VED 423 Program in Elementary and Secondary Schools (Minor Field)	6

* Teaching and Program courses SED 407 and SED 412, are required in major for students in home economics education.

3. Vocational, Technical and Practical Arts Education

a. Agricultural Education

VED 446 Teaching Agriculture	5
VED 466 Teaching Out-of-School Groups	5
VED 456 Teaching Aids in Agricultural Education	4

b. Industrial Arts Education

VED 346 Voc. and Pract. Arts Education	3	SED 405 Teaching in Secondary School, or SED 410 Program in Secondary School (Minor Field)	3
VED 414 Program and Teaching	5	or	
VED 423 Program in Basic Vocational Education (Major Field)	3	IED or PE 414 Teaching in Elementary and Secondary Schools, and	
VED 485 Audio-Visual Materials	5	IED or PE 423 Programs in Elementary and Secondary Schools (Minor Field)	6

4. Health, Physical Education and Recreation

PE 414 Teaching in Elementary and Secondary School, and		SED 405 Teaching in Secondary School, or SED 410 Program in Secondary School (Minor Field)	3
		or	
PE 423 Program in Elementary and Secondary Schools (Major Field)	6	IED or VED 414 Teaching in Elementary and Secondary Schools, and	
		IED or VED 423 Program in Elementary and Secondary Schools (Minor Field)	6

III. REQUIREMENTS FOR MAJOR AND MINOR FIELDS
OF SPECIALIZATION

Study in a major and/or minor field of specialization helps students develop the academic competencies needed for entering the teaching profession with qualifications for teaching in one or more areas of the school program.

A student preparing to teach only at the secondary school level is required to complete a major and a minor field of specialization.

A student enrolled in either elementary or secondary education may prepare to teach in selected fields on a twelve-grade basis. These fields of specialization are art; dramatic arts; health, physical education and recreation; industrial arts; music; speech and/or special education, including speech correction and mental retardation; and school library science. Students in secondary

education with a major and/or minor selected from these fields will qualify also for teaching in the elementary school in the major and/or minor field selected. Students with a major in elementary education, through the concentration of electives, may qualify for teaching in the secondary school in one of these fields by completing the elementary education curriculum and a subject-matter concentration of 27 to 30 hours in the field selected.

Secondary and elementary education students interested in qualifying to teach in one area of the secondary school program, should study with care the respective fields for specialization with a view of selecting the most appropriate teaching field or fields.

Requirements listed below represent minimum hours for a major and a minor in the respective fields of specialization. The number of hours listed for each field of specialization is exclusive of courses completed in pre-professional and professional education. The requirements also exclude the use of any course as partial fulfillment for both the major and the minor field of study.

Subject	Minor	Major
Agricultural Education		76
Art	35-40	45-60
Basic Vocational Education		
Basic Agriculture	28	43
Basic Building Construction	28	43
Basic Distributive Business	26	44
Basic Metals Technology	29	43
Basic Power Mechanics	29	44
Business Education		
General Business	35	66
Office Administration	35	66
Distributive Education		63
Dramatic Arts	32	57
English	20	40
Health, Physical Education and Recreation	40	55
Industrial Arts Education	37	59
Mathematics	35	55
Modern Languages	30	40
Music	30	60
Composite Major-Minor		
Instrumental and Choral		90
Choral and Elementary School Music		90
School Library Service	28-30	
Science		
General Science	20	40
Biological Science	20	45
Physical Science	20	45
Social Science		
General Social Science	20	40
Composite Major-Minor		65
Economics	25	40
Geography	25	40
Sociology	25	40
History	25	40
Speech and/or Special Education, including Speech Correction and Mental Retardation	32	40-50
Trade and Industrial Education		45
Vocational Home Economics		63

Students pursuing a preparation program for teaching in the secondary school only or for teaching in specific fields in both elementary and secondary school programs will complete the subject-matter requirements as listed under the field or fields in which the student is preparing to teach.

AGRICULTURAL EDUCATION**Major: 76 Hours**

VED 246 Instructional Drawing	3
VED 404 Pract. in General Metals	5
VED 406 Pract. in Building Construction and Maintenance	5
VED 407 Pract. in Electricity	5
HF 201 Orchard Management	5
HF 221 Landscape Gardening	5
AN 204 Animal Nutrition	5
AN 303 Farm Machinery and Equipment	5
AH 303 Livestock Production	5
FY 313 Farm Forestry	5
AS 401 Farm Management	5
AY 307 General Soils	5
AN 305 Farm Tractor and Engines	5
AS 301 Agri. Marketing	5
AY 401 Forage Crops	5
AS 410 Agricultural Business Management	3

ART**Minor: 35 or 40 Hours**

AT 105 Drawing I	5
AT 106 Drawing II	5
AT 181 Design Fundamentals I	5
AT 182 Design Fundamentals II	5
AT 222 Painting I	5
AT 338 Art History I	5
AT 342 Elementary School Art	5
AT Approved Elective	5

Major: 45 or 60 Hours

Minor Requirements	35
AT 322 Painting III	5
AT Approved Elective	5
AT Approved Electives	15

BASIC VOCATIONAL EDUCATION**A. Basic Vocational Education****Minor: 28 Hours**

HF 221 Landscape Gardening	5
HF 224 Plant Propagation	5
AN 204 Animal Nutrition	5
AS 401 Farm Management	5
AS 410 Agriculture Business Management	3
AY 307 General Soils	5

Major: 43 Hours

Minor Requirements	28
AH 303 Livestock Production	5
AY 201 Grain Crops	5
AY 401 Forage Crops	5

B. Basic Building Construction**Minor: 28 Hours**

BT 104 Introduction to Buildings	5
BT 105 Drawing and Projections	5
BT 106 Materials and Construction	5
VED 404 Practicum in General Metals	5
VED 405 The School Shop	3
VED 406 Practicum in Building Construction and Maintenance	5

Major: 43 Hours

Minor Requirements	28
BT 220 Mechanics of Structure	5
BT 421 Construction Problems I	5
VED 407 Practicum in Electricity	5

C. Basic Distributive Business**Minor: 26 Hours**

EC 101 Introduction to Business	5
EC 331 Principles of Marketing	5
EC 333 Salesmanship	3
EC 433 Retail Store Management	5
HE 306 Personal Appearance and Social Interaction	3
VED 462 Directed Work Experience	5

Major: 44 Hours

Minor Requirements	26
EC 211 Introductory to Accounting	5
EC 341 Business Law	5
EC 432 Advertising	3
EC 438 Retail Merchandising	5

D. Basic Metal Technology**Minor: 29 Hours**

EG 102 Engineering Drawing I	2
EG 105 Engineering Drawing II	2
IL 102 Welding Science and Application	1
IL 103 Machine Tool Laboratory	1
IL 104 Sheet Metal Design and Fabrication	1
IL 105 Foundry Technology	1
IL 302 Manufacturing Processes-Machining	3
IL 308 Gages and Measurements	5
IL 406 Problems in Machining	5
VED 404 Practicum in General Metals	5
VED 405 The School Shop	3

Major: 43 Hours

Minor Requirements	29
EG 204 Kinematics of Machines	3
IL 301 Manufacturing Processes-Casting	3
IL 303 Manufacturing Processes-Shaping, Forming, and Fabricating	3
IL 405 Problems in Welding Engineering	5

E. Basic Power Mechanics**Minor: 29 Hours**

EG 102 Engineering Drawing I	2
EG 105 Engineering Drawing II	2
EG 204 Kinematics of Machines	3
IL 103 Machine Tool Laboratory	1
IL 308 Gages and Measurements	3
VED 400 Introduction to Power Mechanics	5
VED 401 Practicum in Small Gasoline Engines	5
VED 402 Automotive Construction and Repair	5
VED 405 The School Shop	3

Major: 44 Hours

Minor Requirements	29
EC 101 Introduction to Business	5
IL 406 Problems in Machining	5
VED 404 Practicum in General Metals	5

BUSINESS EDUCATION*A. General Business****Minor: 35 Hours**

EC 211-212 Introductory Accounting	10
EC 200 General Economics	5
EC 300 Business Management	5
EC 341 Business Law	5
SA 111 Business Typewriting or equivalent	5
SA 400 Office Machines	5

* Non-business education majors may take minor A or B. Business education majors will complete program requirements in A or B.

Major: 66 Hours

Minor Requirements	35
EC 311-312 Intermediate Accounting	10
EC 331 Principles of Marketing	5
EC 404 Office Management	5
EH 345 Business and Professional Writing	5
IE 314 Electronic Data Processing Machines	3
SA 305 Filing	1

B. Office Administration**Minor: 35 Hours**

SA 101-102-203 or 102-203-204 Secretarial Science	15
EC 200 General Economics	5
EC 211-212 Introductory Accounting	10
SA 400 Office Machines	5

Major: 66 Hours

Minor Requirements	35
EC 300 Business Management	5
EC 341 Business Law	5
IE 314 Electronic Data Processing Machine	3
SA 305 Filing	1
SA 204 Secretarial Science and/or Secretarial Procedures and SA 404 Advance Office Procedures	10
Approved Elective	5

DISTRIBUTIVE EDUCATION**Major: 63 Hours**

EC 202 Prin. and Prob. of Economics	5
EC 331 Principles of Marketing	5
EC 333 Salesmanship	3
EC 432 Advertising	5
EC 433 Retail Store Management	5
EC 434 Purchasing	5
EC 436 Marketing Research Methods	5
TT 221 Fabric Production and Design	5
EC 435 Marketing Practices	5
EC 438 Retail Marketing	5
EC 437 Sales Management	5
EC 445 Industrial Relations	5
VED 462 Directed Work Experience	5

DRAMA**Minor: 32 Hours**

DR 104 Dramatic Production	3
DR 105 Dramatic Production	3
DR 106 Dramatic Production	3
DR 204 Dramatic Production	3
DR 205 Dramatic Production	3
DR 206 Dramatic Production	3
DR 304 Dramatic Production	3
DR 107 Theatre Literature	1
DR 108 Theatre Literature	1
DR 109 Theatre Literature	1
DR 201 Theatre Literature	2
DR 202 Theatre Literature	2
DR 203 Theatre Literature	2
DR 301 Theatre Literature	2

Major: 57 Hours

Minor Requirements	32
DR 305 Dramatic Production	3
DR 306 Dramatic Production	3
DR 404 Dramatic Production	3
DR 405 Dramatic Production	3

DR 406 Dramatic Production	3
DR 302 Theatre Literature	2
DR 303 Theatre Literature	2
DR 401 Theatre Literature	2
DR 402 Theatre Literature	2
DR 403 Theatre Literature	2

ENGLISH**Minor: 20 Hours**

EH 390 Advanced Composition	5
EH 401 Advanced Grammar or EH 441 Introduction to the Study of Language	5
Approved Electives 300-400 English Courses	10

Major: 40 Hours

Minor Requirements	20
EH 357 or 358 Survey of American Literature	5
EH 451 or 452 Shakespeare	5
Approved Electives 300-400 English Courses	10

**HEALTH, PHYSICAL EDUCATION,
AND RECREATION****Minor: 40 Hours**

Theory & Techniques (Choice of 3 courses) PE 106, 133, 167, 190, 191, 221, 278	6
PE 201 Introduction to H. & PE	5
PE 212 Elementary School Activities	3
*PE 214 Kinesiology	5
PE 316 Tests and Measurements	3
PE 317 School Health & Health Educ.	5
PE 318 Principles of Recreation	5
PE 401 Administration	5
PE 202, 206, 303, 304 (Men) PE 311, 312, 313, 314 (Women)	3

* Pr.—VM 220 and 221, Physics 204.

Major: 55 Hours

Minor Requirements	40
One minor area composed of courses selected from A, B, or C	15

A. Health Education

HE 372 Nutrition & Health	3
PE 409 Advanced Hygiene	5
PE 429 Prob. of Health Education and Observation of School Children	5
PY 300 Public Health	5
VM 311 General Bacteriology	5

B. Physical Education

Theory & Techniques (Choice of 2 courses) PE 106, 133, 167, 190, 191, 221, 278	4
PE 404 Athletic Injuries, First Aid and Safety	5
*PE 405 Physiology of Muscular Activity ..	3
PE 416 Adapted Phys. Educ.	3
PE 202, 206, 303, 304 (Men) PE 311, 312, 313, 314 (Women)	6

C. Recreation

PE 301 Recreational Leadership	5
PE 319 Outdoor Recreation	5
HE 345 Creative Crafts	3
SY 405 Urban Sociology	5

** Required in Option B.

INDUSTRIAL ARTS EDUCATION

Minor: 37 Hours

EG 102 Engineering Drawing	2
EG 104 Descriptive Geometry	2
IL 101 Woodworking	1
IL 102 Welding Science and Application	1
IL 103 Machine Tool Fabrication	1
IL 104 Sheet Metal Design	1
IL 105 Foundry Technology	1
IL 302 Manufacturing Processes	3
IL 307 General Metals	5
IL 402 Advance Woodworking	5
IL 405 Problems in Welding Engineering	5
IL 416 Material of Industrial Arts	5
VED 404 Approved Elective	5

Major: 59 Hours

Minor Requirements	37
EG 105 Engineering Drawing II	2
IL 308 Gages and Measurements	5
IL 418 Industrial Arts Design	5
IL 438 Safety Engineering	5
VED 407 Pract. in Electricity	5

MATHEMATICS

*Minor: 35 Hours

MH 160 Algebra and Trigonometry	5
MH 161 Analytic Geom. & Calculus I	5
MH 162 Analytic Geom. & Calculus II	5
MH 263 Analytic Geom. & Calculus III	5
MH 264 Analytic Geom. & Calculus IV	5
MH 331 Higher Algebra	5
MH 447 Foundations of Plane Geom. or	
MH 481 College Geometry	5

Major: 55 Hours

Minor Requirements	35
MH 340 Topology or	
MH 420 Introduction to Analysis	5
MH 367 Mathematical Statistics	5
MH 431 Introduction to Modern Algebra	5
Approved Elective	5

* No credit allowed in MH 281 or 107 in major or minor.

MODERN LANGUAGES

A. Spanish

Minor: 30 Hours

FL 141 Elementary Spanish	5
FL 132 Elementary Spanish	5
FL 231 Intermediate Spanish	5
FL 232 Intermediate Spanish	5
FL 331 Advanced Spanish	5
FL 332 Advanced Spanish	5

Major: 40 Hours

Minor Requirements	30
FL 431 History of Spanish Literature	5
FL 432 History of Spanish Languages	5

B. German

Minor: 30 Hours

FL 151 Elementary German	5
FL 152 Elementary German	5
FL 251 Intermediate German	5
FL 252 Intermediate German	5
FL 351 Advanced German	5
FL 352 Advanced German	5

Major: 40 Hours

Minor Requirements	30
FL 451 History of German Literature	5
FL 452 History of German Language	5

C. French

Minor: 30 Hours

FL 121 Elementary French	5
FL 122 Elementary French	5
FL 221 Intermediate French	5
FL 222 Intermediate French	5
FL 321 Advanced French	5
FL 322 Advanced French	5

Major: 40 Hours

Minor Requirements	30
FL 421 History of French Literature	5
FL 422 History of French Language	5

MUSIC

Minor: 30 Hours

MU 131, 132, 133 Music Theory	9
Applied (one area; if piano,	
organ will be secondary area)	6
MU 352, 353 Music History II & III	6
MU 361 Conducting I	3
SED 494 Organization of Instrumental	
Music	3
Piano (Private applied or class,	
to be assigned by staff committee)	3

Major: 60 Hours

Minor Requirements	30
Band, Orchestra, Choir or	
Mixed Chorus	11
MU 231, 232, 233 Music Theory	9
Applied, Major Area	5
MU 351 Music History I	3
MU 362, 363 Conducting II & III	2

Composite Major-Minor: 90 Hours

Major Requirements	60
Completion of A or B	30

A. Instrumental and Choral

MU 431, 432 Musical Analysis	6
Electives (Woodwind, brass, string,	
vocal ensemble)	4
MU 113, 114, 115 Brass Instruments Class	3
MU 116, 117, 118 Woodwind Instruments	
Class	3
MU 377 Music Arranging	3
MU 409 Marching Band Techniques	3
MU 454 Instrumental Literature	3
SED 495 Organization of Choral Music	3
MU 110 String Instruments Class	1
MU 119 Percussion Instruments Class	1

B. Choral and Elementary School Music

MU 431, 432 Music Analysis	6
Music Electives	5
EED 497 Organization of Elementary	
Music	3
MU 334 Counterpoint I	3
MU 434 Composition	3
Applied Piano	3
MU 452 Vocal Literature	3
MU 453 Choral Literature	3

SCHOOL LIBRARY SCIENCE

Minor: 28-30 Hours

IED 472 Books and Related Materials for Children	4
IED 482 Organization and Administration of School Libraries	5
IED 484 Class. & Cataloging of School Library Materials	5
IED 486 Books and Related Materials for Young People	5
IED 487 Practicum in School Library Services	4-6
VED 485 Audio-Visual Materials	5

SCIENCE

*Minor: 20 Hours

Approved courses in science	20
* Students who select science as a minor and who major in another area must complete CH 103, 103L and 104, 104L and PS 204 as a part of the minor.	

Major: 40 or 45 Hours

Minor Requirements	20
Completion of one area composed of courses selected from A, B, or C	20-25

A. General Science

PS 205-206 General Physics	10
SED 473 General Science for Teachers	5
Elective	5

B. Biological Science

ZY 214 Vertebrate Physiology & Anatomy	5
Approved Electives in Biological Science 300 and 400 courses	20

C. Physical Science

PS 205-6 General Physics	10
CH 206 Quantitative Analysis	5
CH 207 Organic Chemistry	5
Approved Elective	5

SOCIAL SCIENCE

A. General Social Science

*Minor: 20 Hours

HY 207-8 World History	10
PO 206 U.S. Government	5
Approved Electives from 300-400 courses in History, Sociology, Geography, or Economics	5

Major: 40 Hours

Minor Requirements	20
HY 406 Recent U.S. History	5
HY 452 History of Latin America or	
HY 451 The Far East	5
Approved Electives from 300-400 courses	10

B. Composite Major-Minor: 65 Hours

Major Requirements in 1, 2, 3, or 4	40
Minor Requirements, exclusive of major area selected from 1, 2, 3, or 4	25

* No other minor is available to non-social science majors.

1. Economics

Minor: 25 Hours

EC 200-202 General Economics/Economics II	10
EC 451 Intermediate Economic Theory	5
EC 452 Comparative Economic Systems	5
Approved Electives	5

Major: 40 Hours

Minor Requirements	25
Fifteen hours selected from	
EC 211 Introductory Accounting	5
EC 350 Labor Problems	5
EC 357 Economic History of Europe or	
EC 358 Economic History of the United States	5
EC 360 Money and Banking	5
EC 402 American Industries	5
EC 445 Industrial Relations	5
EC 460 Public Finance	5

2. Geography

Minor: 25 Hours

GY 102 Principles of Geography	5
GY 103 Economic Geography	5
GY 405 Cultural Geography of the World	5
Approved Electives	10

Major: 40 Hours

Minor Requirements	25
Fifteen hours selected from	
GY 303 Geography of the Soviet Union	5
GY 304 Geography of South America	5
GY 305 Geography of North America	5
GY 306 Geography of Europe	5
GY 307 Geography of Asia	5
GY 308 Geography of Africa	5

3. Sociology

Minor: 25 Hours

SY 201 Introduction to Sociology	5
SY 203 Cultural Anthropology	5
Approved Electives	15

Major: 40 Hours

Minor Requirements	25
SY 202 Social Problems	5
SY 304 Minority Groups	5
SY 308 Juvenile Delinquency	5

4. History

Minor: 25 Hours

HY 207-8 World History	10
HY 107 United States History	5
Approved Electives	10

Major: 40 Hours

Minor Requirements	25
Fifteen hours selected from	
PO 206 American Government	5
HY 313 Recent European History	5
HY 451 The Far East	5
HY 452 History of Latin America	5

SPEECH AND/OR SPECIAL EDUCATION*

A. Speech

Minor: 32 Hours

SP 201 Intr. to Oral Comm.	5
SP 211 Essentials of Public Speaking	5
SP 200 Survey of the Bases of Speech	5
SP 273 Group Discussion	5
SED 201 (P) Communication Problems	2
Minors select 10 hours from the following approved electives	10

Major: 40 or 50 Hours**

Minor Requirements 32

Majors select 8-18** hours from the following approved electives.	
SP 220 Interpretative Reading	5
SP 311 Advanced Public Speaking	5
SP 230 Fundamentals of Radio and Television Broadcasting	5
SP 451 Principles of Speech Correction	5
SP 411 Persuasive Speaking	5
Approved Elective	3

B. Speech Correction***

Minor: 32 Hours

SP 201 Intr. to Oral Comm.	5
SP 211 Essentials of Public Speaking	5
SP 301 Phonetics	5
SP 300 The Speech Mechanism	5
SP 460 Introduction to Problems in Hearing	5
SP 451 Principles of Speech Correction	5
SED 201 (P) Communication Problems	2

Major: 40 or 50 Hours**

Minor Requirements 32

Majors select 8-18** hours from the following approved electives	
IED 476 The Exceptional Child	5
PE 409 Advanced Hygiene or PG 434 Mental Hygiene	5
SP 452 Advanced Speech Correction	5
Approved Elective	3

C. Mental Retardation

Minor: 32 Hours

EED 371 Tchg. Rdg. and Other Lang. Arts	6
IED 476 The Exceptional Child	5
IED 478 Nature of Mental Retardation	5
PG 434 Personality Dynamics and Effective Behavior	5
9 hours approved electives from following:	
PE 429 Problems of Health Education & Health Observation of School Children	5
PE 416 Adaptive Physical Education	5
SP 451 Principles of Speech Correction	5
EED 370 Tchg. El. Sch. Math.	4
SED 201 (O or P) Exceptional Children or Communication Problems	2

Major: 40 or 50 Hours**

Minor Requirements 32

A. Select two courses from following (minimum of 8 hours)	
AT 342 Elementary School Art	5
IL 415 Shopwork for Elementary Teachers	5
IED 472 Books and Related Materials for Children	4
MU 371 Introduction to Music	3
HE 345 Creative Crafts	2
B. Select 10 hours from following:	
EED 371 Tchg. Rdg. & Other Lang. Arts	6
SP 460 Introduction to Problems in Hearing	5
SP 452 Advanced Speech Correction or Approved Electives	5

TRADE AND INDUSTRIAL EDUCATION

Major: 45 Hours

VED 475 Trade and Technical Experience	5
VED 476 Trade and Technical Experience	5
VED 477 Trade and Technical Experience	5
VED 478 Trade and Technical Experience	5
VED 479 Trade and Technical Experience	5
VED 480 Trade and Technical Experience	5
EC 350 Labor Problems	5
EC 444 Labor Legislation	5
IE 438 Safety Engineering	5

VOCATIONAL HOME ECONOMICS

Major: 63 Hours

HE 207 (3)-407 (5) Child Development	8
HE 102 Basic Foods and Nutrition	5
HE 105 Fundamentals of Clothing	5
HE 202 Meal Management	5
HE 205 Clothing for the Family	5
HE 303 The House I or HE 343 Interior Home Problems	5
HE 233 Home Equipment or HE 313 Home Furnishings	5
HE 323 Home Management	5
HE 443 Home Management Residence	5
HE 457 Family Relationships	5
HE 305 Tailoring or HE 355 Consumer Textiles	3
HE 353 Community and Family Health	3
HE 372 Nutrition and Health	3
Approved electives in Home Economics	1

* Includes provisions for students to develop major and/or minor areas of concentration in speech, speech correction, or mental retardation.

** Requirement of 50 hours for concentration in one area only—when program of study includes two or more areas of concentration a minimum of 40 hours must be completed in one area.

*** Additional work required: 200 clock hours in an approved Speech and Hearing Clinic.

IV. GUIDES FOR THE COMPLETION OF CURRICULAR REQUIREMENTS FOR THE RESPECTIVE PREPARATION PROGRAMS IN TEACHER EDUCATION

The following curricular outlines set forth requirements and suggestions for preparing teachers to teach in the elementary school, the respective fields of the secondary school, and elementary-secondary in art; dramatic arts; health, physical education and recreation; industrial arts; music; speech and/or special education, including speech correction and mental retardation; and school library science. Provisions are made for meeting the requirements in the pre-professional program, the program in professional education, academic majors and minors, and electives. Specified also are the total number of hours required for the completion of each curriculum and the number of hours assigned to each quarter. In general, courses listed should be taken in sequence.

The Dean reserves the privilege of making substitutions in course requirements, provided such modifications do not conflict with state requirements or university regulations as to degrees in Education.

A. Elementary Education (EED)

FRESHMAN YEAR

FIRST QUARTER	SECOND QUARTER	THIRD QUARTER
EH 101 English Comp. ....5	EH 102 English Comp. ....5	Biological Science ....5
HY 107 United States Hist. 5	GY 102 Prins. of Geog. ....5	PG 213 Growth & Dev. of School-Age Child. ....5
PE 110 Hygiene .....3	Biological Science ....5	EED 104 Orientation .....1
EED 102 Orientation .....1	EED 103 Orientation .....1	PE Physical Education ....1
PE Physical Education ....1	PE Physical Education ....1	*Approved Elective ....5
*Approved Elective ....2	*Approved Elective ....1	

SOPHOMORE YEAR

EH 253 Lit. in English .....5	EH 254 Lit. in English .....5	FED 200 Foundations of Ed. 4
MH 281 El. Mathematics .....5	HY 207 World History .....5	HY 208 World History .....5
PG 214 Educ. Psychology ....5	MH 282 El. Mathematics ....5	SY 201 Intr. to Sociology ....5
PE Physical Education ....1	MU 371 Intro. to Music ....3	PE Physical Education ....1
*Approved Elective ....2	PE Physical Education ....1	*Approved Elective ....3
	*Approved Elective ....1	

JUNIOR YEAR

AT 342 Elem. School Art ....5	EED 329 Creative & Rec. ....6	EED 371 Tch. Rdg. & Other Lang. Arts .....6
PO 206 U.S. Gov't. ....5	EED 370 Tch. El. Sch. Math. ....4	SP 451 Prins. of Speech Correction .....5
FED 300 Prins. & Practices in Education .....4	Physical Science ....5	Physical Science ....5
Approved Elective ....4	Approved Elective ....2	Approved Elective ....4

SENIOR YEAR

EED 421 Dev. Understand. of the Natural & Social Environment 6	EED 425 Student Teaching 15	FED 490 Evaluation in Education .....3
HY 381 Hist. of Alabama ....5		Approved Electives 15
English Elective ....3		
Approved Elective ....4		

* Male students will schedule Military Training each quarter in the freshman and sophomore years.

Students may carefully plan the use of electives and develop an area of concentration of 27 to 30 hours in one of the subject-matter fields included in twelve-grade programs. These areas are art; dramatic arts; health, physical education, and recreation; industrial arts; music; speech and/or special education, including speech correction and mental retardation; and school library science.

Total—215 quarter hours

*B. Secondary Education (SED)

FRESHMAN YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
EH 101	English Comp. ....5	EH 102	English Comp. ....5	PG 213	Growth & Dev. of School-Age Child. ..5
HY 101	History of the United States, ..5	HY 102	History of the United States, or	BY 101	General Botany, ..5
HY 107	United States Hist., or	GY 102	Prins. of Geog. ....5	ZY 101	General Zoology, (or approved biological science) ..5
GY 102	Principles of Geog. 5	Major or Minor ..5		Major or Minor ..5	
SED 102	Orientation: Personal & Prof. ....1	SED 103	Orientation: Personal & Prof. ....1	SED 104	Orientation: Personal & Prof. ....1
Major or Minor ..5		PE 112	Hygiene (women), or	PE 113	Hygiene (women), or
PE 111	Hygiene (women), or	MS	Military Training (men) .....1	MS	Military Training (men) .....1
MS	Military Training (men) .....1	PE	Physical Education ..1	PE	Physical Education ..1
PE	Physical Education ..1				

SOPHOMORE YEAR

BY 102	General Botany, ..5	MH 281	Fundamentals of Math. I (or approved math. elective) ....5	EC 200	Gen. Economics, ..5
ZY 102	General Zoology, (or approved biological science) .....5	FED 200	Foundations .....4	HY 207	World History, or
Major or Minor ..5		Major, Minor or approved electives ..7		SY 201	Intr. to Sociology ..5
PG 214	Educational Psyc. ..5	MS	Military Training (men), or	EH 253	English Literature ..5
MS	Military Training (men) or	Major or Minor ..5		Major or Minor ..5	
Elective (women) ....1		PE	Physical Education ..1	MS	Military Training (men) or
PE	Physical Education ..1	PE	Physical Education ..1	PE	Physical Education ..1

JUNIOR YEAR

EH 254	English Literature (or approved substitute) .....5	EC 200	Gen. Economics, ..5	PS 204	Survey Course in Physics, (or approved physical science) ....5
FED 300	Prins. & Practices in Education .....4	HY 208	World History, or	Major-Minor (or approved electives) 10	
Major-Minor (or approved electives) 6		SY 201	Intr. to Sociology ..5	Teaching, Program (Major-Minor) (or approved elective) ..3	
Teaching, Program (Major-Minor) (or approved elective) ..5		Major-Minor (or approved electives) 10			

SENIOR YEAR

Major-Minor, (or approved electives) 15		Student Teaching ..15		SED 473	Gen. Science for Teachers (or approved physical science) .....5
Teaching, Program (Major-Minor) (or approved elective) ..3				FED 490	Evaluation in Education .....3
				Major-Minor (or approved electives) 12	

* The above curriculum is the framework for a complete program in secondary education. The department offers a complete program in a number of teaching fields. These include the major and minor in art, business education, dramatic arts, English, vocational home economics, languages, mathematics, music, science, social science, speech, and the minor in school library science.

Total—215 quarter hours

C. Health, Physical Education and Recreation (PE)

FRESHMAN YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
EH 101	English Comp. ....5	EH 102	English Comp. ....5	PG 213	Growth & Development .....5
GY 102	Prin. of Geography 5	PE 201	Intr. to Phys. Ed. .5	VM 221	Anatomy & Physiology .....5
HY 107	or 101 U.S. History 5	VM 220	Anatomy & Physiology .....5	PE 110	Health Science .....3
MS	Military Training .....1	MS	Military Training .....1	PE 212	Elementary School Activities .....3
PE 102	Orientation .....1	PE 103	Orientation .....1	MS	Military Training .....1
PE	Physical Education .1	PE	Physical Education .1	PE 104	Orientation .....1
				PE	Physical Education .1

SOPHOMORE YEAR

EH 253	English Lit. ....5	EC 200	General Economics .5	PE 214	Kinesiology .....5
MH 281	Fundamentals of Math. ....5	PS 204	Physics .....5	SY 201	Sociology .....5
PG 214	Educational Pysc. .5	SP 211	Speech .....5	FED 200	Found. of Ed. .4
PE	Theory & Technique 2	PE	Theory & Technique 2	PE	Theory & Technique 2
MS	Military Training .....1	MS	Military Training .....1	MS	Military Training .....1
PE	Physical Education .1	PE	Physical Education .1	PE	Physical Education .1

JUNIOR YEAR

PE 318	Prin. of Recrea. ....5	PE 316	Tests & Measurements .....3	PE 317	School Health & Health Educ. ....5
PE	Option A, B, or C .5	PE 202, 206, 303, 304 (M)	or	SED 473	Gen. Sci. for Teachers
FED 300	Princ. & Prac. Ed. 4	PE 311, 312, 331, 314 (W)	3	or	Approved Elective .5
PE	Theory & Technique 2	PE 414	Teaching (Major) .3	PE 423	Program (Major) .3
		PE	Theory & Technique 2		Approved Elective .6
			Approved Elective .5		

SENIOR YEAR

PE	Option A, B, or C .5	PE	Option A, B, or C .5	PE 425	Student Teaching 15
PS 401	Organization & Administration .....5	FED 490	Evaluation .....3		
PE 414	or 423 Teaching or Program (minor) .3	PE 414	or 423 Program or Teaching (minor) or		
	Approved Elective .5		Approved Elective .3		
			Approved Elective .9		

Total—215 quarter hours

D. Vocational, Technical and Practical Arts (VED)

FRESHMAN YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
HY 107	U.S. History .....5	EH 101	English Comp. ....5	BY 101	General Botany** .5
MH 121	University Math.* .5	MH 122	University Math.*** 5	EH 102	English Comp. ....5
ZY 101	General Zoology** 5	CH 103	General Chemistry .4	CH 104	General Chemistry .4
VED 102	Orientation .....1	CH 103L	Gen. Chem. Lab. .1	CH 104L	Gen. Chem. Lab. .1
MS	Military Training .....1	VED 103	Orientation .....1	VED 104	Orientation .....1
PE	Physical Education .1	MS	Military Training .....1	MS	Military Training .....1
		PE	Physical Education .1	PE	Physical Education .1

* MH 107, College Algebra, for Agricultural Education and Basic Distributive Business.

** Approved physical science elective for Basic Building Construction and Basic Metals Technology majors and MH 108 for Basic Distributive Business majors.

*** Approved horticultural elective for Agricultural Education majors.

SOPHOMORE YEAR

General Economics Elective*	PG 213	Growth & Dev. of the School-Age Child .....5	PG 214	Ed. Psychology .....5	PS 206	Intr. Physics** .....5
Social Science Elective .....5			PS 204	Foundations of Physics* .....5	SP 211	Essentials of Public Speaking .....5
Social Science Elective .....3			FED 200	Foundations of Ed. 4	FED 300	Prin. & Pract. of Ed. ....4
MS				Writing Elective .3	VED 346	Voc. & Bract. Arts Ed. ....3
PE				MS		Military Training .....1
				PE		Physical Education .1

* AS 202 for Agricultural Education and EC 201 for Distributive Education majors.

** PS 205 for Basic Building Construction, Basic Metals Technology, Basic Power Mechanics, Industrial Arts and Trade and Industrial Education majors.

*** HF 221 for Agricultural Education and EC 202 for Distributive Education majors.

1. Agricultural Education

JUNIOR YEAR

FIRST QUARTER	
AH 204 Animal Nutrition	5
AN 303 Farm Machinery & Equipment	5
or	
AN 301 Drainage & Terracing	5
VED 246 Inst. Drawing	3
VED 410 Occupational Information	3
Elective	2

SECOND QUARTER	
AH 303 Livestock Production	5
DH 200 Dairy Fundamentals	5
or	
FY 313 Farm Forestry	5
or	
PH 301 General Poultry	5
VED 404 Pract. in General Metals	5
VED 414 Program & Teaching	5

THIRD QUARTER	
AS 401 Farm Management	5
AY 307 General Soils	5
VED 406 Pract. in Building Construction & Maintenance	5
VED 456 Learning Resources	3

SENIOR YEAR

AN 305 Farm Tractors & Eng.	5
VED 407 Practicum in Electricity	5
AS 410 Agricultural Business Mgt.	3
VED 458 Coord. and Supr. in VED	3
VED 466 Teach. Out-of-School Groups	3

VED 425 Student Teaching	15
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AS 301 Agr. Marketing	5
AY 201 Grain Crops	5
or	
AY 401 Forage Crops	5
ZY 402 Economic Entomology	5
FED 490 Eval. in Education	3

Total—220 quarter hours

2. Basic Vocational Education

JUNIOR YEAR

FIRST QUARTER	
Major Electives*	10
VED 410 Occupational Information	3
Minor Elective	5

SECOND QUARTER	
Major Elective	5
VED 414 Program & Teaching Major	5
Minor Electives	8

THIRD QUARTER	
Major Electives	10
VED 456 Learning Resources	3
Minor Electives	8

SENIOR YEAR

Major Electives*	15
VED 423 Program in Basic VED (Minor)*	3

VED 425 Student Teaching (Major)	15
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Major Electives	5
Minor Electives	10
FED 490 Eval. in Ed.	3

Note: See page 106 for the listing of approved major and minor electives in the basic vocational specialization fields of agriculture, building construction, distributive business, metals technology and power mechanics.

Total—220 quarter hours

3. Distributive Education

JUNIOR YEAR

FIRST QUARTER	
EC 331 Prin. of Marketing	5
EC 333 Salesmanship	3
VED 410 Occupational Info.	3
TT 101 Intr. to Textiles	1
Approved Electives	7

SECOND QUARTER	
EC 432 Advertising	5
EC 433 Retail Store Management	5
VED 414 Program and Teaching	5
Elective	3

THIRD QUARTER	
EC 434 Purchasing	5
EC 436 Marketing Research Methods	5
TT 221 Fabric Prod. & Design	5
VED 456 Learning Resources	3

SENIOR YEAR

EC 435 Marketing Pract.	5
EC 438 Retail Marketing	5
Elective	4
VED 458 Coord. & Supervision in VED	3
VED 466 Teaching Out-of-School Group	3

VED 425 Student Teaching	15
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EC 437 Sales Management	5
EC 445 Industrial Relations	5
VED 462 Directed Work Experience	5
FED 490 Evaluation in Education	3

Total—220 quarter hours

4. Industrial Arts Education

JUNIOR YEAR		
FIRST QUARTER	SECOND QUARTER	THIRD QUARTER
IM 307 Safety Engineering .5	IL 308 Gages & Measurements .....5	IL 307 Gen. Metals .....5
VED 404 Pract. in Gen. Metals .....5	VED 414 Program and Teaching .....5	VED 456 Learning Resources .....3
VED 410 Occupational Information .....3	IL 302 Manufacturing Processes .....3	EG 104 Descriptive Geometry .....2
EG 102 Eng. Drawing I .....2	VED 405 The School Shop .....3	IL 104 Sheet Metal Design and Fabrication .....1
IL 102 Welding Science .....1	EG 105 Eng. Drawing II .....2	IL 105 Foundry Tech. ....1
IL 103 Machine Tools .....1	Approved Elective .....2	
SENIOR YEAR		
IL 416 Material of Ind. Arts .....5	VED 425 Student Teaching 15	IL 402 Advanced Wood-working .....5
IL 418 Industrial Design .....5		IL 405 Probs. in Welding Eng. ....5
VED 407 Pract. in Elect. Program Minor .....3		VED 409 Electronics in Ind. Arts for Teachers .....5
IL 101 Woodworking .....1		FED 490 Eval. in Education 3

Total—220 quarter hours

5. Trade and Industrial Education

JUNIOR YEAR		
FIRST QUARTER	SECOND QUARTER	THIRD QUARTER
EC 350 Labor Problems .....5	EC 444 Labor Legislation .....5	VED 477 Trade & Tech. Exp.* .....5
VED 458 Audio Visual Materials .....5	VED 414 Program & Teaching .....5	VED 476 Org. of Inst. in Trade & Ind. Ed. ....5
VED 475 Trade & Tech. Exp.* .....5	VED 476 Trade & Tech. Exp.* .....5	VED 456 Learning Resources .....3
VED 410 Occupational Information .....3	VED 405 The School Shop .....3	Elective .....4
SENIOR YEAR		
IL 417 Org. of Shop Courses .....5	VED 479 Trade & Tech. Exp.* .....5	IE 438 Safety Eng. ....5
VED 478 Trade & Tech. Exp.* .....5	VED 425 Student Teaching 15	VED 480 Trade & Tech. Exp.* .....5
VED 458 Coord. & Supr. in VED .....3		FED 490 Eval. in Education 3
VED 466 Teaching Out-of-School Groups .....3		Electives** .....4
Elective .....2		

Total—224 quarter hours

* Credit for VED 475-480 (inc.) (5-5-5-5-5) by supervised employment or by examination on basis of journeyman level work experience at the maximum rate of 15 quarter hours for each year of such experience. In those occupations where there is no organized apprenticeship experience beyond the level of learner the level of learner will correspond to journeyman level. If employment experience required for certification is obtained prior to starting the curriculum, elective coursework may be substituted for these credits. Time required to complete curriculum would be reduced accordingly.

Department of Psychology (PG)

The curriculum in Psychology provides undergraduate preparation in the science of behavior and a liberal education in the natural and social sciences and the humanities. A major in Psychology requires 41 quarter hours. These include PG 211, 212, 215, 320, 321, 322, and at least 16 hours in courses having 400 numbers, excluding PG 461.

Fifty hours in Mathematics and Science are required and will normally include: 10 hours selected from VM 220, VM 221, ZY 300, ZY 301, or ZY 302; 15 hours in Chemistry, to be selected from CH 103, 104, 105, 111, 112, 113, and 203, or 15 hours in Physics (PS 201, 202, 203); and Mathematics through a course containing calculus. Ten hours each in Physics and Chemistry may be substituted for 15 hours in one. Exceptions to these requirements may be

approved by the department head for students who wish to acquire substantial depth in a single scientific discipline or in Mathematics.

Language requirements include 10 hours of English Composition and completion of the first intermediate course in French, German, Russian, or Spanish. Forty-four hours must be completed in Humanities and Social Sciences including 10 hours each in World History (HY 207-208), Sociology (SY 201, 203), and Philosophy (PA 400 and elective). Remaining courses in the Humanities and Social Sciences must be approved by the student's adviser.

A minor of at least 20 hours beyond the general requirements listed above is required. The minor may be entirely in one field or may be drawn from several fields with the approval of the department head. In either case, the minor must include some advanced work in the area, and in the case of a minor covering more than one area, all courses must contribute to a unified program.

Exceptions to these requirements and substitutions for specific courses identified above may be made with the approval of the department head. Such exceptions will typically be made for students who wish to pursue more vigorous programs or for students who transfer from other curricula late in their undergraduate work.

Curriculum in Psychology (PG)

FRESHMAN YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
EH 101	English Comp. ....5	EH 102	English Comp. ....5	MH	Math. requirement
MH 121	College Mathematics	MH 122	College Mathematics		or elective .....5
	or		or	PG 211	Intr. to Psychol-
MH 160	Intr. College Math. 5	MH 161	Anal. Geom. & Cal. 5		ogy I .....5
ZY 101	General Zoology ....5	ZY 102	General Zoology ....5		Science Requirement 5
MS	Military Training ....1	LY 101	Use of Library ....1	MS	Military Training ....1
PE	Physical Education ....1	MS	Military Training ....1	PE	Physical Education ....1
PG 101	Orientation .....0	PE	Physical Education ....1		

SOPHOMORE YEAR

FL	Foreign Language ..5	FL	Foreign Language ..5	FL	Foreign Language ..5
PG 212	Intr. to Psycho. II ..5		Human-Social Science Requirement ..5	PG 215	Science Requirement 5
MS	Science Requirement 5		Science Requirement 5		Quant. Methods
MS	Military Training ....1		Military Training ....1		in Psychology .....4
PE	Physical Education ....1	MS	Physical Education ....1		Human-Social Science Requirement ..3
		PE		MS	Military Training ....1
				PE	Physical Education ....1

JUNIOR YEAR

	Human-Social Science Requirements 8		Human-Social Science Requirements ..8		Human-Social Science Requirements 10
	Science .....5		Minor .....5		Minor .....5
PG 320	Exper. Psycho. I ....4	PG 321	Exper. Psych. II ....4	PG 322	Exper. Psycho. III ....4

SENIOR YEAR

PG	Psycho. Requirements .....8		Human-Social Science Requirements ..5	PG	Electives .....13-15
	Human-Social Science Requirements 5		Minor .....5		Psycho. ....4
	Minor .....5	PG	Psycho. ....4		
			Elective .....3-5		

Total—212 quarter hours

Foreign language may be substituted in the freshman year.

Women will substitute PE 111, 112, 113, Hygiene, in the freshman year and electives during the sophomore year.

Students exempt from the first two quarters of a foreign language may substitute electives during these quarters.

Student taking advanced military courses may substitute these in the curriculum as necessary for humanities-social science requirements. The latter may be taken instead of electives during the senior year.

School of Engineering

FRED H. PUMPHREY, *Dean*
J. GRADY COX, *Assistant Dean*

THE ENGINEERING PROFESSION applies a knowledge of the mathematical and natural sciences in developing ways to utilize the materials and forces of nature for the benefit of mankind. The various curricula in engineering prepare the students to work and serve in this profession. It is largely through the efforts of the engineer that it is now possible for our American civilization to consider the elimination of want.

As a professional man the engineer must have a broad general education so that he may take his place not only in the technical councils of American citizenry, but in social and political councils as well. It is essential, therefore, that he have a truly liberal education.

Admission Requirements.—As indicated above, the requirements for a good liberal education necessitate high school preparatory work of high intellectual quality and of considerable breadth. For admission to the curriculum in Pre-Engineering graduation from an approved secondary school with a minimum of 15 units, or the equivalent as shown by examination, is required. The following program is recommended as *minimum* preparation for a college engineering education: English, four units; mathematics (including algebra, geometry and trigonometry); chemistry, physics, biology, two or three units; foreign language, two or three units; history, literature, social science, two or three units.

The ability to communicate with his fellow man is absolutely essential to the engineer. The secondary school student needs four years of English in order to gain the ability to read, write, speak and listen with precision, facility, clarity and understanding.

Preparation for world-wide communication and travel, now possible because of great engineering achievement, calls for study by engineers of foreign languages. Study should begin as early as possible, even in elementary or junior high school, and should include a minimum of two years in at least one foreign language in secondary school.

Mathematics and the sciences are the fundamentals upon which the profession of engineering is built. The prospective engineering student must acquire the best possible background of mathematics in elementary, junior high and senior high school. The college preparatory mathematics should include two and one-half units of algebra, one unit of geometry including geometry of three dimensions, and one-half unit of trigonometry or the equivalent in a coordinated four-year modern college preparatory mathematics program. These mathematics courses definitely should be deep and rigorous and preferably of modern design. The student will need at least one year of physics and one year of chemistry. Biology is advantageous but should not be selected in preference to physics or chemistry. The courses in science should stress concepts and methods of science and should not be courses in the wonders of science.

Applicants are admitted to curricula in the School of Engineering by the Engineering Admissions Committee after satisfactory performance in the ap-

propriate freshman program. Applicants for admission to Aerospace, Civil, Electrical, Industrial, Mechanical, Metallurgical, and Textile Engineering and Textile Chemistry will be approved upon completion with satisfactory grades of prescribed courses in mathematics through MH 162; English Composition, 10 hours; chemistry, 10 hours; and engineering graphics including descriptive geometry, 6 hours. Admission to Aviation Management will be approved upon satisfactory completion of 50 quarter hours and to Textile Management upon satisfactory completion of 45 quarter hours of the work prescribed for the freshman year, provided the completions include all the prescribed work in English composition, chemistry, and engineering graphics.

Engineering Curricula. — Curricula offered are designed to meet the educational requirements of the engineering profession. The program in the fundamental sciences of mathematics, chemistry, and physics is followed by a study of basic engineering sciences. Specialized or departmental courses follow in the third and fourth years. A parallel program emphasizing the humanistic-social studies, including history, literature, economics, philosophy and similar courses, is followed throughout the four years having as its objective a good general education for the engineering student.

Curricula accredited by the Engineers' Council for Professional Development lead to the degrees of Bachelor of Aerospace Engineering, Bachelor of Civil Engineering, Bachelor of Electrical Engineering, and Bachelor of Mechanical Engineering. Accredited curricula in Agricultural Engineering and Chemical Engineering are offered by the Schools of Agriculture and Chemistry, respectively.

A curriculum in Industrial Engineering leads to the degree of Bachelor of Industrial Engineering. This curriculum is presently under review by the Engineers' Council for Professional Development for accreditation.

A curriculum in Metallurgical Engineering leads to the degree of Bachelor of Metallurgical Engineering. This curriculum is administered through the Department of Mechanical Engineering.

A curriculum in Textile Engineering leads to the degree of Bachelor of Textile Engineering. This curriculum replaces the Textile Science curriculum previously offered. Students already enrolled in the Textile Science curriculum may continue their present degree objective or may choose to study for the Bachelor of Textile Engineering degree.

A curriculum in Textile Chemistry leads to the degree of Bachelor of Textile Chemistry. This curriculum is designed to train students in the chemistry of man-made fibers and in the theory and practice of textile dyeing and finishing.

Engineering students who wish to lighten the load of a four-year curriculum may schedule 15 or 16 hours per quarter rather than the prescribed 18 to 20 hours. It is recommended that students not well-grounded in English, mathematics or science plan their programs on the basis of the lighter load. This will require one or more additional quarters of residence.

Management Curricula. — Two management curricula leading to the degrees of Bachelor of Aviation Management and Bachelor of Textile Management prepare young men and women for a wide range of administrative and managerial positions in industry. The program of study in the freshman year provides a period of orientation, guidance, and selection. Freshmen are reg-

istered in the Department of Pre-Engineering as Pre-Engineering-Management students, and are admitted to management curricula upon successful completion of the freshman program.

Graduate Degrees.—Master of Science degrees are offered in the areas of Aerospace Engineering, Civil Engineering, Electrical Engineering, and Mechanical Engineering. In addition, a Master of Science degree program has been approved for Industrial Engineering, contingent upon approval of the undergraduate curriculum by the Engineers' Council for Professional Development. The Doctor of Philosophy degree is offered in the areas of Electrical Engineering and Mechanical Engineering. For requirements for these degrees, see the Graduate School Bulletin.

Service Departments.—The Departments of Engineering Graphics and Industrial Laboratories are service departments to the School of Engineering. However, the courses offered in these departments may also be taken by students in other schools who may find them useful in their particular fields. The Department of Industrial Laboratories, in cooperation with the School of Education, offers a program for the professional and technical training of Industrial Arts teachers for elementary and secondary schools. (See School of Education for major and minor requirements.)

CO-OPERATIVE EDUCATION PROGRAM

The Co-operative Education Program is offered in all curricula of the School of Engineering. Refer to Page 29 for a brief description of the program and write to the Director, Co-operative Education, 107 Ramsay Hall, for a booklet which gives additional information.

ENGINEERING EXTENSION SERVICE

The Engineering Extension Service helps to extend the resources of the School of Engineering to the people, businesses, and industries of the state. Most of the programs of this expanding service take the form of short courses, conferences, clinics, and seminars. For further information write to the Director, Engineering Extension Service, 107 Ramsay Hall.

Auburn School of Aviation

ROBERT G. PITTS, *Director*

The Auburn School of Aviation was established in 1942 as a department of the School of Engineering to offer flight and ground school instruction in aircraft piloting for resident and extension students of the University, for the Armed Forces, and for the general public; and to serve the citizens of Alabama and the Southern Region by providing other services in the broad field of aviation. The School cooperates fully with the Federal Aviation Agency in conducting special aviation training programs. At the present time the school is conducting a flight program for the training of private, commercial, multi-engine, and instrument pilots and flight instructors.

The University is exceptionally well equipped to conduct pilot training programs inasmuch as it owns a large modern airport of 325 acres conveniently

located within two miles of the campus. The landing field has two paved runways 4,000 feet long. Other facilities include two large hangars and a modern Administration Building.

In addition to the training of pilots, such other public service accommodations as airplane storage, servicing, maintenance, and repair are provided at the airport. In conjunction with the Aerospace Engineering Laboratories located on the campus, the operation at the airport serves as an excellent laboratory of practical training for students enrolled in the curricula of Aviation Management and Aerospace Engineering. Because of the excellent aviation facilities, the University has been fully certified by the Federal Aviation Authority as an Approved Ground and Flight School and has examining authority for private pilots.

The Director of the Auburn School of Aviation is an Aircraft Inspection Representative for the Federal Aviation Agency.

Pre-Engineering

HOWARD STRONG, *Assistant to the Dean for Pre-Engineering*

The Pre-Engineering Program consists of a freshman program of studies to prepare students for admission to the School of Engineering with sophomore standing.

The freshman Pre-Engineering curriculum shown below is uniform for seven Engineering curricula: namely, Aerospace, Civil, Electrical, Industrial, Mechanical, Metallurgical, and Textile Engineering. It is designed for students whose ACT or College Board (SAT) scores indicate that they are capable of being successful in Mathematics 161, English 101 or 103, and Chemistry 103 during their first quarter in school. *Students required to schedule courses below these levels in mathematics, English, and/or chemistry, are expected to plan, with the assistance of the Assistant to the Dean for Pre-Engineering, a program of work for four or five quarters, depending upon their aptitude and extent of high school preparation. A typical five-quarter curriculum follows the three-quarter curriculum outlined below.*

A student who has not proceeded from Pre-Engineering to his field of major interest in engineering after the completion of six quarters may continue to register in Pre-Engineering only by special permission of the Dean of Engineering.

Three-Quarter Pre-Engineering Curriculum

FIRST QUARTER	SECOND QUARTER	THIRD QUARTER
CH 103 Gen. Chemistry ....4	CH 104 Gen. Chemistry ....4	MH 263 Anal. Geom. & Cal. 5
CH 103L Gen. Chem. Lab. .1	CH 104L Gen. Chem. Lab. .1	PS 201 Gen. Phys. Mech. .5
EH 101 English Comp. ....5	EH 102 English Comp. ....5	EG 105 Engr. Draw. II ....2
MH 161 Anal. Geom. & Cal. 5	MH 162 Anal. Geom. & Cal. 5	IL 102 Welding Science ....1
EG 102 Engr. Draw. I ....2	EG 104 Descript. Geom. ....2	IL 103 Machine Tool Lab. 1
PN 101 History of Engr. ....1	PN 102 Intr. to Engr. ....1	PN 103 Engr. Method ....1
MS Military Training ....1	Profession .....1	*Elective .....3
PE Physical Education ....1	MS Military Training ....1	MS Military Training ....1
	PE Physical Education ....1	PE Physical Education ....1

* See approved list, page 117.

Five-Quarter Pre-Engineering Curriculum*

FIRST QUARTER

CH 103 General Chemistry	4
CH 103L General Chemistry Lab.	1
EH 101 English Composition	5
MH 160 Intr. to College Math.	
or	
MH 161 Anal. Geom. & Calculus	5
IL 103 Machine Tool Laboratory	1
PN 101 History of Engineering	1
MS Military Training	1
PE Physical Education	1

SECOND QUARTER

CH 104 General Chemistry	4
CH 104L General Chemistry Lab.	1
EH 102 English Composition	5
MH 161 Anal. Geom. & Calculus	
or	
MH 162 Anal. Geom. & Calculus	5
IL 102 Welding Science	1
PN 102 Intr. to Engr. Profession	1
MS Military Training	1
PE Physical Education	1

THIRD QUARTER

MH 162 Anal. Geom. & Calculus	
or	
MH 263 Anal. Geom. & Calculus	5
PS 201 Gen. Physics (Mechanics)	5
EC 206 Socio-Economic Foundations	
of Contemporary America	3
EG 102 Engineering Drawing I	2
PN 103 Engineering Method	1
MS Military Training	1
PE Physical Education	1

FOURTH QUARTER

HY 107 United States History	5
MH 263 Anal. Geom. & Calculus	
or	
MH 264 Anal. Geom. & Calculus	5
PS 202 Gen. Physics—Sound, Heat and	
Electricity	5
EG 104 Descriptive Geometry	2
MS Military Training	1
PE Physical Education	1

* This curriculum includes all the Pre-Engineering courses plus 28 quarter hours of sophomore work (EC 206; MH 264 and 361; PS 202 and 203; and PA 202 or EH 108 or EH 253.)

FIFTH QUARTER

EH 108 Classical Literature	
or	
EH 253 Literature in English	
or	
PA 202 Ethics and Society	**5
MH 264 Anal. Geom. & Calculus	
or	
MH 361 Differential Equations	5
PS 203 Gen. Physics—Electromagnetism	
and Light	5
EG 105 Engineering Drawing II	2
MS Military Training	1
PE Physical Education	1

** EE, IE and MTL require EH 253.
ME requires either EH 108 or PA 202.
CE requires EH 108.
AE and TE require PA 202.

Curricula in Engineering

Humanistic-Social Studies.—The various engineering curricula are arranged to allow students in those curricula the opportunity to schedule a minimum of 30 quarter credit hours of humanistic-social studies. A few courses are prescribed, but the student may choose, in addition, several humanistic-social courses of particular interest to him. The courses from which he may choose these electives are listed below.

APPROVED ELECTIVES

HISTORY AND GOVERNMENT

HY 107 United States History	5
HY 204 History of the Modern World	3
or	
HY 208 World History	5
HY 207 World History	5
HY 311 Medieval History	5
HY 314 United States Colonial History	3
HY 315 International Organization	3
HY 322 The U.S. in World Affairs	3
HY 371 History of the West	3

HY 431 History of Europe Since the	
Treaty of Versailles	5
HY 460 Great Leaders of History	5
HY 472 History of England	5
HY 482 History of the South	5
HY Current Events	1
PO 206 United States Government	5
PO 407 Political Science	5

LITERATURE

EH 108 Classical Literature	5
EH 208 Literature of the Western World	3

EH 253 Literature in English	5	SOCIOLOGY	
EH 254 Literature in English	5	SY 201 Introduction to Sociology	5
EH 320 An Introduction to Drama	3	SY 204 Social Behavior	5
EH 350 Shakespeare's Greatest Plays	3	SY 311 Technology and Social Change	3
EH 360 Continental Fiction	3	SPEECH	
EH 365 Southern Literature	3	SP 310 Great American Speeches	3
EH 381 The Literature of the Age of Reason	3	PHILOSOPHY AND RELIGION	
THE ARTS		PA 202 Ethics and Society	5
AT 431 Contemporary Art	3	PA 301 Introduction to Philosophy	3
AR 360 Appreciation of Architecture	3	PA 302 Introduction to Ethics	3
DR 313 Drama Appreciation I	3	PA 307 Scientific Reasoning	5
DR 314 Drama Appreciation II	3	or	
MU 373 Appreciation of Music	3	PA 308 Introduction to Logic	3
MU 374 Masterpieces of Music	3	PA 310 Eastern Rel. Thought	3
ECONOMICS		PA 315 Western Rel. Thought	3
EC 200 General Economics	5	PA 330 Philosophy of Religion	5
EC 206 Socio-Economic Foundations of Contemporary America	3	PA 400 Philosophy of Science	5
EC 357 Economic History of Europe	5	PA 440 American Philosophy	5
EC 358 Economic History of the U.S.	5	RE 301 Rel. and Modern Thought	3
GEOGRAPHY		RE 303 Christian Ethics	5
GY 301 Geo.-Political Basis of World Powers	3	RE 305 Comparative Religion	3
GY 405 Cultural Geography of the World ..	5	RE 308 Studies in the Gospels	3
GY 407 World Resources and Their Utilization	5	PSYCHOLOGY	
		PG 211 General Psychology	5
		or	
		PG 311 Behavior of Man	3
		PG 461 Industrial Psychology	5

Aerospace Engineering

The curriculum in Aerospace Engineering provides an especially good educational background for those wishing to enter the many areas of today's major scientific effort—conquest of space. It also places emphasis on conventional aircraft, missiles and aero-propulsion systems. The first two years of the curriculum are devoted to the basic subjects of mathematics, physics and mechanics. The last two years deal with such broad areas as aerodynamics, design, propulsion, structures and space science. During the senior year students may schedule technical electives in several fields of specialization. The Aerospace Engineering Curriculum also serves as an excellent background for graduate work and research.

Curriculum in Aerospace Engineering (AE)

FRESHMAN YEAR

(See Pre-Engineering Curriculum, Page 116)

SOPHOMORE YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
MH 264 Analytic Geom. & Calculus	5	MH 361 Diff. Equations	5	AE 300 Aerospace Analysis I	4
PS 202 General Physics— Sound, Heat and Electricity	5	PS 203 General Physics— Electromagnetism and Light	5	ME 208 Strength of Materials I	4
ME 205 Applied Mechanics Statics	4	ME 321 Dynamics of a Particle	4	ME 322 Dynamics of systems of Particles	4
AE 205 Aerospace Fund.	3	ME 301 Thermodynamics I ..	4	AE 306 Basic Astronautics ..	3
MS Military Training ..	1	MS Military Training ..	1	ME 202 Engr. Materials Science-Structure ..	3
PE Physical Education ..	1	PE Physical Education ..	1	MS Military Training ..	1
				PE Physical Education ..	1

JUNIOR YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
AE 301 Basic Aerodynamics (Lab.)	.....5	AE 413 Theoretical Aerodynamics (Lab.)	.....5	AE 404 High Speed Aerodynamics (Lab.)	5
AE 308 Aircraft Structures I	5	AE 409 Aircraft Structures II (Lab.)	.....6	AE 310 Aero Anal. II	.....4
*PS 301 Intermediate Electricity and Magnetism	.....5	*PS 302 Electronics	.....5	PA 202 Ethics & Society	.....5
***Elective	.....3	**SP 210 Public Speaking	..3	***Elective	.....4

SENIOR YEAR

AE 440 Performance	.....3	AE 431 Astronautics	.....5	AE 405 B.L. Theory & Aerodynamic Heat	3
AE 429 Aircraft Vibration & Flutter	.....5	AE †Group Electives	.....6	AE 411 Airplane Design	...3
AE 415 Rocket & Jet Prop.	5	***Elective	.....5	AE †Group Electives	...6
AE 403 Stability and Control (Lab.)	.....5	AE 401 Aeronautical Problems I	.....1	***Electives	.....6
				AE 402 Aeronautical Problems II	.....1

Total—228 quarter hours

† Group electives must be approved by the Department Head.

* Students may take PS 301 and 302 or EE 263, EE 361 and one other EE course.

** Six hours of Advanced ROTC may be substituted for SP 210 (3 Hrs.) and three additional hours approved by the Department Head.

*** Electives must be selected from the approved list of Humanistic-Social Studies, subject to approval by the Department Head.

GROUP ELECTIVES

AE 416 Rocket Propulsion I	.....3	AE 430 Rotary Wing Aircraft	.....5
AE 417 Rocket Propulsion II	.....3	ME 421 Heat Transfer	.....4
AE 420 Flight Vehicle Structures I	.....3	PS 305 Introduction to Modern Physics	.....5
AE 421 Flight Vehicle Structures II	.....3	PS 405 Nuclear Physics	.....5
AE 441 Dynamic Stability & Control	.....3	AE 414 Equilibrium Gas Dynamics	.....3
AE 442 Automatic Stability & Control	.....3	AE 424 Nonequilibrium Gas Dynamics	.....3
AE 428 Space Propulsion Systems	.....5		

Aviation Management

The curriculum in Aviation Management provides education for men and women who plan management careers with the airlines, general aviation, manufacturing, governmental agencies or the military services. The study of fundamental aerospace courses is combined with specified subjects in industrial engineering, business management and selected electives to provide preparation for the various specific functions of the aerospace industries including general management, production, operations, flying, maintenance, and education and training. It also provides a broad educational background of fundamental philosophies, theories, and concepts needed for research and study at the graduate levels.

Curriculum in Aviation Management (AA)

FRESHMAN YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
EH 101 English Comp.	.....5	MH 161 Anal. Geom. & Cal.	5	PA 202 Ethics & Society	.....5
MH 160 Algebra & Trig.	.....5	EH 102 English Comp.	.....5	PG 211 Intr. to Psy.	.....5
IL 102 Weld. Sci. & App.	...1	CH 102 Intr. College Chemistry	.....3	MH 162 Anal. Geom. & Cal.	5
EG 102 Engr. Drawing I	.....2	EG 104 Descrip. Geom.	.....2	EG 105 Engr. Drawing II	..2
HY 107 U.S. History	.....5	IL 103 Machine Tool Lab.	1	IL 104 Sheet Metal	.....1
MS Military Training	...1	MS Military Training	...1	MS Military Training	...1
PE Physical Education	...1	PE Physical Education I	...	PE Physical Education	...1

SOPHOMORE YEAR

FIRST QUARTER

IE 201	Industrial Eng.	5
EC 245	Statistics	5
PS 205	Intr. Physics	5
*SA 113	Typewriting	3
MS	Military Training	1
PE	Physical Education	1

SECOND QUARTER

EC 215	Fund. of Gen. & Cost Accounting	5
EC 200	Gen. Economics	5
PS 206	Intr. Physics	5
AA 202	Aerospace History	3
MS	Military Training	1
PE	Physical Education	1

THIRD QUARTER

AA 201	Elem. Aeronautics	5
PO 206	U.S. Government	5
EC 300	Business Organ. & Management	5
IE 204	Computer Programming	3
MS	Military Training	1
PE	Physical Education	1

JUNIOR YEAR

AA 311	Propulsion Fundamentals	5
EC 341	Business Law	5
PG 461	Industrial Psych.	5
AA 309	Aerospace Legislation	3
IE 305	Information Systems	2

AA 312	Guidance & Control Fundamentals	5
EH 345	Bus. & Prof. Writ.	5
IE 302	Prod. Control	5
**SP 210	Public Speaking	3

AA 305	Aviation Meteorology	5
IE 310	Work Measurement	5
IE 320	Engineering Economy	5
EC 244	Graphic Methods in Business	3

SENIOR YEAR

AA 402	Aerospace Vehicle Systems	5
AA 416	Airport Mgt.	5
	Major Elective	5
	General Elective	3

AA 417	Airline Oper.	5
EC 442	Personnel Mgt.	5
	Major Elective	5
	General Elective	3

AA 418	Air Transport	5
EC 445	Indus. Relations or Industrial Mgt.	5
EC 400	Industrial Mgt.	5
AA 401	Aeronautical Seminar	1
	Major Elective	5
	General Elective	2

Total—228 quarter hours

* Students who have one unit of high school typing will not be allowed credit for SA 113. An elective will be substituted.

** Advanced ROTC may be substituted for SP 210 and 6 hours of general electives. Electives must be approved by the Department Head.

Civil Engineering

The Civil Engineering curriculum provides a sound training in mathematics and the physical sciences, in the applied sciences and principles of civil engineering, in a limited number of technical electives, and in humanistic-social studies. The curriculum prepares the graduate for further training by his employer and for the eventual practice of civil engineering. Courses in mathematics and the physical sciences constitute the foundation upon which the successful professional training is built. Technical electives provide for limited specialization in some branch of civil engineering such as highway, hydraulic, sanitary, soils or structural engineering.

Training in civil engineering may lead to professional activities in analysis, design, research, construction, production or sales. Such activities may be directly or indirectly concerned with highways, railroads, dams and appurtenant structures, rivers, harbors, water supply, sewage disposal, industrial wastes, foundations, buildings, bridges, etc.

The civil engineer holds a leading role in the development of our country. As in most of the professions, great changes are taking place in methods and equipment. The civil engineer will take full advantage of recent advancements in science.

Curriculum in Civil Engineering (CE)

FRESHMAN YEAR

(See Pre-Engineering Curriculum, Page 116)

SOPHOMORE YEAR

FIRST QUARTER

CE 201	Surveying I	5
MH 264	Anal. Geom. & Cal.	5
PS 202	Gen. Physics— Sound, Heat and Electricity	5
ME 202	Eng. Mat. Science	3
MS	Military Training	1
PE	Physical Education	1

SECOND QUARTER

EH 108	Classical Lit.	5
PS 203	Gen. Physics— Electromagnetism and Light	5
CE 203	Surveying II	4
ME 205	Statics	4
MS	Military Training	1
PE	Physical Education	1

THIRD QUARTER

HY 107	U.S. History	5
EC 200	Gen. Economics	5
MH 361	Diff. Equations	5
IE 204	Dig. Comp. Prog.	3
MS	Military Training	1
PE	Physical Education	1

JUNIOR YEAR

CE 320	Hwy. Eng. I	5
ME 307	Dynamics	5
IE 303	Eng. Statistics I	4
ME 208	Strength I	4
CE 304	Theory Struc. I	5
CE 308	Hydraulics I	3
ME 301	Thermo. I	4
CE 314	Photogeology	5
IE 320	Eng. Economics	5
CE 380	Theory Struc. II	5
EC 206	Soc.-Ec. Found.	3
CE 309	Hydraulics II	3
CE 303	Struc. Mat. Test	3

SENIOR YEAR

CE 305	Water Supply	5
CE 404	Reinf. Concrete	5
CE 418	Soil Mechanics	5
EE 304	Elec. Circuits	4
CE 405	Sewage	5
CE 414	Str. Design I	4
**SP 210	Public Speaking	3
	Technical Elective	6
**IE 430	Cont. & Specs.	3
CE 408	Foundations	3
CE 422	Senior Seminar	1
	Technical Elective	5
	*Soc-Humanistic Elective	5

Total—228 quarter hours

* Courses used for electives must be selected from the list of Humanistic-Social Studies submitted for approval of the Department Head.

** Six hours of Advanced ROTC may be substituted for SP 210 (3 hrs.) and IE 430 (3 hrs.).

SUGGESTED TECHNICAL ELECTIVES

CE 400	Higher Surveying	5
CE 402	Statically Indeterminate Structures	5
CE 407	Municipal Engineering I	3
CE 409	Environmental Health Engr.	5
CE 410	Highway Engineering II	5
CE 411	Flow in Open Channels	5
CE 412	Hydrology	5
CE 413	Hydraulic Structures	5
CE 415	Construction Planning	3
CE 417	Structural Design II	5
CE 419	Municipal Engineering II	3
CE 420	Sanitary Engineering Laboratory	5
CE 421	Water Resources Engineering	5
CN 440	Nuclear Engineering	5
EE 305	Electronics and Instrumentation	5
ME 304	Engr. Materials Science-Properties	3
ME 335	Engr. Materials Science— Physical Metallurgy	4
MH 362	Engineering Mathematics I	5
MH 404	Engineering Mathematics III	5
MH 460	Numerical Analysis I	5
MH 461	Numerical Analysis II	5
PS 401	Theoretical Physics I—Mechanics	5
PS 402	Theoretical Physics II—Mechanics	5
PS 405	Nuclear Physics	5

Electrical Engineering

The curriculum in Electrical Engineering keeps pace with significant developments in science and technology; provides an educational preparation that assures maximum rate of progress in the engineering profession; and does this within the framework of a sound and extensive humanistic social program.

The Electrical Engineering curriculum is organized around four basic areas of study. These areas provide a firm background in the basic concepts required for all Electrical Engineering students. They are (1) Circuit Analysis, (2) Electronics and Communication, (3) Energy Conversion and Transmission, and (4) Electromagnetic Fields. In addition, the senior year of the curriculum is arranged so that a student, through his choice of technical electives, can concentrate on topics of individual interest. Included in these specialized topics are closed-loop control systems, analog and digital com-

puters, generation and transmission of electrical power, advanced communications systems, solid state electronics, and network synthesis.

All required courses have associated laboratories, in order to keep the student in maximum contact with the realities of the practice of engineering.

Curriculum in Electrical Engineering (EE)

FRESHMAN YEAR

(See Pre-Engineering Curriculum, Page 116)

SOPHOMORE YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
MH 264	Analytic Geometry and Calculus .....5	MH 361	Diff. Equations I ....5	EE 263	Circuit Analysis .....5
PS 202	Gen. Physics—Sound, Heat and Electricity .....5	PS 203	Gen. Physics—Electromagnetism and Light .....5	MH 362	Engr. Math. I .....5
ME 205	Applied Mechanics—Statics .....4	ME 321	Dynamics of a Particle .....4	ME 301	Thermodynamics ....4
ME 202	Engr. Materials Science-Structure ....3	IE 303	Engr. Statistics I ....4	ME 322	Dynamics of Systems of Particles ....4
LY 101	Use of the Library ..1	MS	Military Training ....1	MS	Military Training ....1
MS	Military Training ....1	PE	Physical Education ..1	PE	Physical Education ..1
PE	Physical Education ..1				

JUNIOR YEAR

EE 361	Circuit Analysis II ..5	EE 362	Circuit Analysis III 5	EE 363	Distributed Systems 5
EH 253	Lit. in English .....5	EH 254	Lit. in English .....5	EE 373	Electronics and Communications II 5
	Math., Physics, or Engr. (Not EE) Elective .....5	EE 372	Electronics and Communications I ..4	EE 383	Energy Conversion and Control Systems I .....5
	*Elective .....3	ME 324	Fluid Mech. I or		*Elective .....3
		ME 208	Strength of Materials I .....4		

SENIOR YEAR

EE 471	Electronics and Communications III 5	EE 472	Electronics and Communications IV 5	EE 493	Electromagnetic Fields III .....5
EE 481	Energy Conversion and Control Systems II .....5	EE 482	Energy Conversion and Control Systems III .....5	SP 210	Public Speaking ....3
EE 491	Electromagnetic Fields I .....5	EE 492	Electromagnetic Fields II .....5	EE 413	Physical Electronics 4
	*Elective .....3	EC 206	Soc.-Ec. Foundations of Cont. America ....3		

Total—228 quarter hours

Six hours of Advanced ROTC may be substituted for six required hours with departmental approval.

* See approved list, page 117.

** Technical Electives: EE 443, Solid State Electronics; EE 444, Digital Computers; EE 445, Nuclear Instrumentation; EE 446, Analog Computers; EE 447, Magnetic Devices; EE 461, Introductory Network Synthesis; EE 473, Communication Systems; EE 483, Energy Conversion and Transmission Systems; EE 490, Seminar.

Industrial Engineering

The curriculum in Industrial Engineering prepares one for employment in the design, operation, and control of systems involving men, machines, and materials. Emphasis is placed upon those areas of academic education which are fundamental and pertinent to production and manufacturing; however, the factfinding and analysis approach of Industrial Engineering is applicable to almost any business or service enterprise.

To provide the scientific base required for Industrial Engineering, the student takes sequences of courses in mathematics, physics, chemistry, and engineering science. Part of the engineering science courses are offered

through an elective-option arrangement. This base is utilized and reinforced by additional quantitative courses such as engineering statistics, computer programming, linear programming, simulation, and operations research. The economic and human aspects of Industrial Engineering are also recognized through appropriate subjects. Application of this fundamental knowledge is made in courses such as inventory control, production control, budget control, and plant design.

The philosophy of the Department of Industrial Engineering is to train the student to recognize and solve industrial problems with the most efficient tools available. To the extent possible, this curriculum provides and demonstrates by application the fundamental principles and techniques of Industrial Engineering.

Curriculum in Industrial Engineering (IE)

FRESHMAN YEAR

(See Pre-Engineering Curriculum, Page 116)

SOPHOMORE YEAR

FIRST QUARTER

MH 264	Anal. Geom. & Cal.	5
PS 202	Gen. Physics— Sound, Heat and Electricity	5
ME 205	Applied Mechanics— Statics	4
ME 202	Eng. Mat. Sc.— Struc.	3
LY 101	Use of Library	1
MS	Military Training	1
PE	Physical Education	1

SECOND QUARTER

EC 200	General Economics	5
MH 361	Diff. Equations	5
PS 203	Gen. Physics— Electromagnetism and Light	5
IE 204	Computer Prog.	3
MS	Military Training	1
PE	Physical Education	1

THIRD QUARTER

EE 263	Circ. Analysis I	5
EH 253	Lit. in English	5
ME 208	Strength of Mat.	4
ME 301	Thermodynamics	4
MS	Military Training	1
PE	Physical Education	1

JUNIOR YEAR

EC 215	Fund. of Gen. and Cost Acc.	5
IE 303	Engr. Statistics I	4
IE 323	Linear Programming	3
IE 305	Infor. Systems	2
	*Technical Elective	5
IE 312	Engr. Statistics II	5
IE 320	Engr. Economy	5
IL 310	Dimen. Control	4
	*Technical Elective	4
IE 310	Work Measurement	5
IE 322	Quality Control	5
IE 304	Stat. Lab.	2
	*Technical Elective	5

SENIOR YEAR

IE 422	Inventory Control	5
IE 416	Ind. Simulation	4
EC 447	Job Evaluation	3
	Technical Elective	5
	**Elective	3
IE 423	Operations Research	5
PG 461	Industrial Psych.	5
EC 448	Incentive Methods	3
	**Elective	3
IE 424	Prod. Control	5
IE 426	Ind. Budget Control	5
IE 428	Plant Design	5
	**Elective	3

Total—228 quarter hours

* Technical electives to be selected from engineering science courses other than Industrial Engineering. A list of such courses is available in the office of the Department Head.

** Electives to be selected from the approved list of Humanistic-Social Studies, subject to approval of the Department Head. Six hours of advanced ROTC may be substituted with Department Head approval.

Unmarked technical electives should be selected from junior or senior level engineering, mathematics, or physics courses with Department Head approval.

Mechanical Engineering

Students who complete the curriculum in Mechanical Engineering have a broad field from which to select their life's work. Industrial positions in manufacturing, marketing, maintenance, and design are available to graduate mechanical engineers in a large variety of companies which produce mechanical, chemical, electrical, aeronautical, and petroleum products. In addition, the graduate is prepared by his college training, when supplemented by experience and practical training, to specialize in management or engineering services,

such as consulting and sales. The curriculum also is suitable for students intending to enter the fields of engineering education and research. It is an excellent base for further study at the graduate level in this and allied fields.

The curriculum provides the student with a strong background in mathematics and the physical sciences. The basic engineering science fields of engineering mechanics, materials science, thermodynamics, fluid mechanics, and heat transfer are covered in depth to provide the student with understanding and the ability to solve problems in these areas. In addition, professional training is given in combustion engines, including gas turbines and rockets, power plants, air conditioning, refrigeration, automatic controls, turbomachinery and machine design. A series of courses in electrical theory and electronics is also included to equip the graduate with needed fundamental knowledge in this rapidly expanding field.

Humanistic-social subjects are required to give the student breadth and to add to his general education.

Technical electives are provided in the senior year of the curriculum to enable students to specialize to a limited extent. Students intending to undertake graduate studies may take additional mathematics in lieu of certain professional technical electives.

Curriculum in Mechanical Engineering (ME)

FRESHMAN YEAR

(See Pre-Engineering Curriculum, Page 116)

SOPHOMORE YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
MH 264	Anal. Geom. & Cal. 5	MH 361	Differential Equations .....5	EE 263	Circuit Analysis I ..5
PS 202	Gen. Physics— Sound, Heat and Electricity .....5	PS 203	Gen. Physics— Electromagnetism and Light .....5	MH 362	Engineering Math. I 5
ME 205	Applied Mechanics— Statics .....4	ME 208	Strength of Materials I .....4	ME 322	Dynamics of Systems of Particles .....4
ME 202	Engineering Materials Science—Structure ..3	ME 321	Dynamics of a Particle .....4	ME 301	Thermodynamics I ..4
LY 101	Use of the Library ..1	MS	Military Training ..1	MS	Military Training ..1
MS	Military Training ..1	PE	Physical Education ..1	PE	Physical Education ..1
PE	Physical Education ..1				

JUNIOR YEAR

EE 361	Circuit Analysis II ..5	EE 372	Electronics and Communications I ..4	ME 323	Dynamics of Machines .....4
EH 108	Classical Literature or	ME 316	Strength of Materials II .....4	ME 325	Fluid Mechanics II 4
PA 202	Ethics and Society ..5	ME 324	Fluid Mechanics I ..4	ME 335	Engineering Materials Science—Physical Metallurgy .....4
ME 302	Thermodynamics II ..4	ME 327	Mechanical Vibrations .....4	EC 206	Socio-Economic Foundations of Con- temporary America 3
ME 304	Engineering Materials Science—Properties 3	ME 309	Strength of Ma- terials Laboratory ....1	PA 308	Introduction to Logic .....3
ME 308	ME Laboratory I ..1	ME 311	ME Laboratory II ..1		

SENIOR YEAR

ME 410	Power Systems .....4	ME 412	Combustion Engine Systems .....4	ME 451	Advanced Projects ..3
ME 421	Heat Transfer .....4	ME 440	Machine Design II ..4	*SP 210	Public Speaking ..3
ME 439	Machine Design I ..4	ME 424	ME Laboratory IV ..2	ME 411	ME Laboratory III 2
**Electives .....6			Technical Elective ..5		Technical Elective ..4
			**Elective .....3		**Electives .....6

Total—228 quarter hours

* Six hours of Advanced ROTC may be substituted for SP 210 and three additional hours approved by the Department Head.

** Electives must be selected from the list of Humanistic-Social Studies, subject to approval of the Department Head.

SUGGESTED TECHNICAL ELECTIVES

In addition to the subjects listed below, other subjects may be used as technical electives upon approval of the Head of the Department and the Dean of Engineering.

CE 304 Theory of Structures	5	ME 430 Internal Combustion Engines	
CE 305 Water Supply	5	Problems	4
CE 402 Indeterminate Structures	5	ME 432 Automatic Controls	4
CE 404 Reinforced Concrete	5	ME 436 Engineering Materials Science—	
CN 440 Nuclear Engineering	5	Ferrous Metallurgy	4
EE 362 Circuit Analysis III	5	ME 437 Engineering Materials Science—	
EE 363 Distributed Systems	5	Non ferrous Metallurgy	4
EE 383 Energy Conversion &		ME 438 Residual Stresses in Metals	4
Transmission I	5	ME 441 Engineering Systems I	4
EE 491 Electromagnetic Fields I	5	ME 442 Engineering Systems II	4
IE 303 Engineering Statistics I	4	ME 443 Photoelastic Stress and Strain	
IE 320 Engineering Economy	5	Analysis	4
IL 450 Engineering Metrology	1-5	ME 450 Special Problems	1-5
ME 414 Turbomachines	4	MH 403 Engineering Mathematics II or	
ME 422 Transport Phenomena	4	MH 404 Engineering Mathematics III or	
ME 425 Gas and Steam Turbines	4	MH 460 Numerical Analysis I	5
ME 426 Steam Turbines	4	PS 305 Introduction to Modern Physics	5
ME 428 Air Conditioning and Refrigeration ..	4	PS 413 Introduction to X-Ray	
		Crystallography	5

Metallurgical Engineering

The curriculum in Metallurgical Engineering is administered by the Department of Mechanical Engineering of the School of Engineering, in cooperation with the Department of Chemical Engineering of the School of Chemistry.

Metallurgical Engineering includes both the design of metallurgical processes and the design of metals to meet specific needs. Metallurgical Engineers are employed in the basic metallurgical, electronics, aerospace, mechanical, process, chemical, and nuclear power industries. Today, many Metallurgical Engineers occupy key positions in industry, government, private research laboratories, and in educational institutions.

The curriculum in Metallurgical Engineering is planned to provide the necessary foundation in the humanities, basic sciences, engineering sciences, and particularly in the science of the relationship of structure to properties. The curriculum will prepare the Engineer for effective industrial professional practice or graduate study. With a relatively small amount of additional study, he will be prepared to work with other types of engineering materials such as plastics, semiconductors, ceramics, natural materials, and superconductors.

The courses in Metallurgical Engineering include the subjects of extractive, process, and physical metallurgy with particular emphasis on the latter and on its relation to design. The equipment available is comprehensive and modern and includes metallurgical microscopes, X-ray diffraction and radiographic facilities, an electron microscope, and mechanical processing and testing machines.

Curriculum in Metallurgical Engineering (MTL)

FRESHMAN YEAR

(See Pre-Engineering Curriculum, Page 116)

SOPHOMORE YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
MH 204	Anal. Geom. & Cal. 5	†CH 105	General Chemistry 3	CH 206	Quant. Analysis .....5
EC 206	Socio-Econ. Found. of Cont. America .....3	CH 105L	Gen. Chem. Lab. 2	MH 361	Diff. Equations .....5
PS 202	Gen. Physics— Sound, Heat and Electricity .....5	PS 203	Gen. Physics— Electromagnetism and Light .....5	ME 304	Engr. Materials Science—Properties 3
ME 205	Applied Mechanics— Statics .....4	ME 202	Engr. Materials Science—Structure ...3	EH 253	Lit. in English .....5
MS	Military Training ...1	ME 208	Strength of Materials I .....4	MS	Military Training ...1
PE	Physical Education ...1	MS	Military Training ...1	PE	Physical Education ...1
		PE	Physical Education ...1		

JUNIOR YEAR

CH 407	Physical Chem. ....5	CH 408	Physical Chem. ....5	CH 412	Chemical Thermodynamics .....5
ME 335	Engr. Materials Science—Phys. Met. 4	ME 336	Metallography & Heat Treat. I .....4	ME 337	Metallography & Heat Treat. II .....4
EE 263	Circuit Anal. I .....5	EE 361	Circuit Anal. II .....5	CN 427	Extractive Metallurgy .....5
ME 316	Strength of Materials II .....4	PS 413	Intr. to X-ray Crystallography .....5	EE 372	Electronics & Communications I ...4

SENIOR YEAR

CN 402	Heat Transfer for Metallurgists .....5	EC 200	General Economics 5	ME 447	Adv. Physical Metal- lurgy—Plasticity ...4
EH 254	Literature in English .....5	ME 446	Advanced Physical Metallurgy—Theo- retical Met. ....4	ME 451	Adv. Projects (Metallurgical Design) .....3
ME 338	Phase Diagrams .....4	ME 437	Engr. Materials Science—Non- Ferrous Met. ....4	*SP 210	Public Speaking ...3
ME 436	Engr. Materials Science—Ferrous Metallurgy .....4	*Elective	.....5	**Electives	.....9

Total—228 quarter hours

† The sequence, CH 111, CH 112, and CH 113, may be substituted for the sequence, CH 103/CH 103L, CH 104/CH 104L, and CH 105/CH 105L.

* Six hours of Advanced ROTC may be substituted for SP 210 and three additional hours approved by the Department Head.

** Electives must be selected from the list of Humanistic-Social Studies, subject to approval of the Department Head.

Textile Engineering

The Department of Textile Engineering is equipped with full-size machinery of a complete textile mill for the manufacture of a wide variety of fabrics from the processing of the raw material to the weaving of the finished product. Included are laboratories for bleaching, dyeing, finishing, and the physical and chemical testing of fibers and fabrics.

The textile industry is the largest industry in Alabama, comprising more than 25 per cent of the total industrial working force in the State. The greater portion of the textile industry, making yarn on the cotton system, is located in the South and Southeast. In the Southern Region alone, there are some 1500 plants which process cotton, rayon, nylon, wool, and paper and an almost unlimited number of finished products. The industry is growing rapidly in all branches.

The size and diversity of the textile and allied industries, including manufacturers of textile machinery and equipment, chemicals and dyestuffs, research laboratories, textile supply and sales houses, afford unusual opportunities for college-trained men and women. New fields of employment are opening in research and development and in the processing of new fibers. The need

for college graduates in textile engineering has never been greater than at the present time, nor is the demand likely to be met within the next several years.

The Department of Textile Engineering offers three curricula to prepare students for all areas of the industry. The Textile courses in these curricula are combined with courses offered by other departments of the University to provide basic instruction in the fundamental sciences, engineering, technology and humanistic-social studies. The three curricula are:

Textile Engineering.—The curriculum in Textile Engineering trains men and women in the basic engineering sciences. It includes basic engineering sciences, humanistic-social studies, and textile subjects needed for a basic understanding of the textile industry. It prepares students for graduate study and careers in textile research, engineering, production and management in the textile industry as well as in other allied industries, such as the manufacture of textile machinery and man-made fibers.

Textile Management.—The curriculum in Textile Management prepares the student for production, administrative and managerial positions in the textile and allied industries. Emphasis is placed on production and operational functions and the humanistic-social studies with the inclusion of textile subjects. Students are permitted in their junior and senior years to major in production, sales, or design according to their interests and professional needs.

Textile Chemistry.—The curriculum in Textile Chemistry trains students in the chemistry of natural and man-made fibers and in the theory and practice of textile dyeing and finishing. It prepares students for graduate work and careers as chemists and dyers in the textile, man-made fibers, dyestuff and other allied industries.

The Alabama textile industry cooperates with the Department of Textile Engineering by assisting worthy young men and women to obtain a college education through the Cooperative Education Program, which is described on page 29 of this catalog.

The Department of Textile Engineering is organized and equipped to conduct applied and fundamental research. In cooperation with the Auburn Research Foundation, the Engineering Experiment Station, and other departments of the University, the department serves the textile industry of the region through the full utilization of its facilities.

Curriculum in Textile Engineering (TE)

FRESHMAN YEAR

(See Pre-Engineering Curriculum, Page 116)

SOPHOMORE YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
MH 264	Anal. Geom. & Cal. 5	TE 211	Yarn Mfg. I .....5	EC 200	General Economics ..5
PS 202	Gen. Physics—	PS 203	Gen. Physics—	TE 220	Weaving Design I ..5
	Sound, Heat and		Electromagnetism	ME 205	Applied Mechs.—
	Electricity .....5	MH 361	Differential		Statics .....4
TE 210	Fiber Processing ..5		Equations .....5	ME 202	Engr. Materials
TE 101	Intr. to Textiles ....1	IE 204	Computer		Science—Structure ..3
MS	Military Training ....1		Programming .....3	MS	Military Training ....1
PE	Physical Education ..1	MS	Military Training ....1	PE	Physical Education ..1
		PE	Physical Education ..1		

JUNIOR YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
TE 307	Bleach & Dyeing ....5	EE 305	Electronics & Instrumentation .....5	EE 306	Machinery & Power Transmission .....5
TE 322	Yarn Mfg. II .....5	TE 320	Weaving Design II 5	ME 307	Applied Mechanics—Dynamics .....5
EE 304	Electrical Circuits .4	ME 304	E.M.S.—Properties .3	TE 317	Dyeing & Fin. ....5
ME 208	Strength of Materials .....4	EH 304	Technical Writing .3	TE 324	Physical Test. ....3
		TE 305	Fiber Technology ....3	TE 319	Chem. Testing .....2

SENIOR YEAR

TE 405	Warp Preparation ....5	PG 461	Industrial Psychology .....5	TE 401	Engineering Aspects of Textile Materials & Processes .....5
ME 301	Thermodynamics I 4	TE 406	Textile Costing .....5		Technical Elective .5
SP 210	Public Speaking .....3	TE 412	Textile Mgt. ....3		Elective .....6
TE 431	Fabric Analysis .....3		Technical Elective .5		
	Elective .....5				

Total—228 quarter hours

General electives must be selected from the approved list of Humanistic-Social Studies, subject to approval of the Department Head. Six hours of Advanced ROTC may be substituted with Department Head approval.

SUGGESTED TECHNICAL ELECTIVES

In addition to the subjects listed below, other subjects may be used as technical electives with approval of the Department Head.

PS 305	Introduction to Modern Physics .....5	IE 322	Statistical Quality Control .....5
ME 428	Air Conditioning and Refrigeration .4	TE 321	Weaving and Design III .....5
IE 303	Engineering Statistics I .....4	TE 424	Man-Made Fibers I .....5
IE 310	Work Measurement .....5	TE 432	Finishing & Printing .....5

Curriculum in Textile Chemistry (TC)

FRESHMAN YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
CH 111	Gen. Chemistry ....5	CH 112	Gen. Chemistry ....5	CH 113	Gen. Chemistry ....5
EH 101	English Comp. ....5	EH 102	English Comp. ....5	MH 162	Anal. Geom. & Cal. 5
MH 160	Algebra & Trig. ....5	MH 161	Anal. Geom. & Cal. 5	HY 107	U.S. History .....5
TE 101	Intr. to Textiles ....1	EG 102	Engr. Draw. I .....2	LY 101	Use of Library .....1
IL 103	Machine Tool Lab. .1	MS	Military Training ....1	MS	Military Training ....1
MS	Military Training ....1	PE	Physical Education .1	PE	Physical Education .1
PE	Physical Education .1				

SOPHOMORE YEAR

MH 263	Anal. Geom. & Cal. 5	MH 264	Anal. Geom. & Cal. 5	PO 208	U.S. Government .5
PS 201	Physics—Mech. ....5	PS 202	Gen. Physics—Sound, Heat and Electricity .....5	PA 202	Ethics & Soc. ....5
TE 210	Fiber Process .....5	TE 220	Weav. & Design I .5	PS 203	Gen. Physics—Electromagnetism and Light .....5
SP 210	Public Speaking .....3	TE 305	Fiber Technology ....3	EC 206	Socio-Economic Foundations .....3
MS	Military Training ....1	MS	Military Training ....1	MS	Military Training ....1
PE	Physical Education .1	PE	Physical Education .1	PE	Physical Education .1

JUNIOR YEAR

CH 204	Analytical Chem. ....5	CH 205	Analytical Chem. ....5	TE 317	Dyeing & Finishing 5
TE 320	Weav. & Design II 5	TE 307	Bleach. & Dyeing ....5	CH 303	Organic Chemistry 5
EH 304	Tech. Writing .....3	TE 211	Yarn Mfg. I .....5	TE 319	Chem. Testing .....2
PG 311	Behavior of Man ....3		Elective .....3		Technical Elective .5
	Elective .....3				Elective .....3

SENIOR YEAR

CH 304	Organic Chemistry .5	CH 407	Physical Chemistry 5	CH 408	Physical Chemistry 5
TE 405	Warp Prep. ....5	TE 417	Adv. Dyeing .....5	TE 406	Textile Cost .....5
TE 412	Tex. Management .3	TE 424	Man-made Fibers .5		Technical Elective .5
TE 324	Phy. Testing .....3		Elective .....3		Elective .....3
	Elective .....3				

Total—228 quarter hours

General electives must be selected from the approved list of Humanistic-Social Studies, subject to approval of the Department Head. Six hours of Advanced ROTC may be substituted with Department Head approval.

SUGGESTED TECHNICAL ELECTIVES

In addition to the subjects listed below, other subjects may be used as technical electives with approval of the Department Head.

CH 305 Organic Chemistry	5	IE 320 Engineering Economy	5
CH 404 Organic Analysis (Qualitative)	5	PS 305 Introduction to Modern Physics	5
CN 432 Instrumentation and Control	4	TE 321 Weaving and Designing III	5
ME 208 Strength of Materials I	4	TE 322 Yarn Manufacture II	5
ME 310 Thermodynamics	5	TE 418 Jacquard Weaving and Design	2
MH 361 Differential Equations	5	TE 425 Man-Made Fibers II	5
IE 303 Engineering Statistics	4	TE 431 Fabric Analysis	3

Curriculum in Textile Management (TM)**FRESHMAN YEAR**

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
EH 101 English Comp.	5	CH 102 Intro. to Chem.	3	PS 204 Survey in Physics ..	5
HY 107 United States Hist. ..	5	EH 102 English Comp.	5	PG 211 Gen. Psychology	5
MH 121 College Math.	5	MH 122 College Math.	5	PA 202 Ethics and Society ..	5
TE 101 Intr. to Textiles	1	EG 102 Engr. Drawing I ..	2	MS Military Training	1
MS Military Training	1	IL 103 Mch. Tool Lab.	1	PE Physical Education	1
PE Physical Education	1	MS Military Training	1		
		PE Physical Education	1		

SOPHOMORE YEAR

EC 206 Soc. Ec. Foundation ..	3	EC 202 Economics II	5	IE 201 Indus. Engr.	5
EC 200 Gen. Econ.	5	SY 201 Intr. to Sociology ..	5	PO 206 U.S. Govt.	5
TE 210 Fiber Processing	5	TE 220 Weaving & Design ..	5	TE 211 Yarn Mfg. I	5
TE 305 Fiber Technology	3	SP 210 Public Speaking	3	MS Military Training	1
MS Military Training	1	MS Military Training	1	PE Physical Education	1
PE Physical Education	1	PE Physical Education	1		

JUNIOR YEAR

EC 245 Statistics	5	TE 317 Dyeing & Finishing ..	5	EH 345 Bus. & Prof. Writ. ..	5
TE 307 Bleaching & Dying ..	5	TE 320 Weaving & Des. II ..	5	TE 319 Chemical Testing	2
TE 322 Yarn Mfg. II	5	TE 324 Physical Testing	3	TE 321 Weaving & Design III	5
Gen. Elective	3	TE 325 Textile Qual. Control	2	TE 418 Jacquard Weav. & Design	2
		Gen. Elective	3	Gen. Elective	3

SENIOR YEAR

EC 445 Industrial Relations ..	5	EC 442 Personnel Mgt.	5	TE 424 Man-Made Fibers I ..	5
TE 406 Textile Costing	5	TE 405 Warp Preparation	5	TE 412 Textile Management ..	3
Tech. Elective	5	Tech. Elective	5	TE 431 Fabric Analysis	3
Gen. Elective	3	Gen. Elective	3	Tech. Elective	5
				Gen. Elective	3

Total—216 quarter hours

Textile Management students will take the above curriculum plus three of the technical electives in accordance with interests and professional needs. General electives may be selected from approved list on page 117. Six hours of Advanced ROTC may be substituted for six hours of general electives. Substitutions not included on either of these lists may be made with the approval of the Department Head.

APPROVED TECHNICAL ELECTIVES

IE 301 Data Processing	5	EC 215 Fundamentals of Accounting	5	EC 436 Bus. Res. Methods ..	5
IE 302 Production Contrl.	5	EC 331 Prin. of Marketing ..	5	HE 415 Hist. of Textiles	5
IE 320 Engr. Economy	5	EC 333 Salesmanship	5	PG 360 Applied Psychology ..	5
IE 426 Ind. Budgeting	5	EC 341 Business Law	5	PG 461 Indus. Psychology	5
IE 430 Contracts & Spec.	3	EC 300 Bus. Organization	5	TE 425 Man-Made Fibers II ..	5
IE 438 Safety Engr.	5				

School of Home Economics

MILDRED S. VAN DE MARK, *Acting Dean*

THE SCHOOL OF HOME ECONOMICS offers young people a balanced education. The curriculum includes liberal arts, professional, and technical courses. It offers the student preparation for homemaking, professional education in one of six major subject matter fields, and technical education for highly specialized fields. Students in other schools on campus may elect a minor in any of the fields of Home Economics. All courses are open to both men and women students.

A Home Economics student is assigned an adviser from the Home Economics faculty. The adviser counsels in a private and personal capacity as well as professional, and usually serves until the student's junior year. Upon choosing a major, the student is assigned an adviser who helps decide how to use elective hours. Electives may be used to strengthen majors or minors (18 quarter hours) in any field. Some recommended fields for a minor are art, business administration, chemistry, economics, education, foreign languages, journalism, sociology, radio and television.

In the junior year, each student is required to make a block schedule of the last two years of work, including recommended minors. This outline must be transmitted to the dean before the student registers for the junior year. At this time it is the student's responsibility to reserve a place in one of the Home Management Houses for the appropriate quarter.

The School of Home Economics is divided into subject matter departments. A graduate of this school receives a Bachelor of Science Degree in Home Economics with a major in one of the following:

- I. **Clothing and Textiles** which leads to fields of work in retailing and styling, journalism, teaching, textile testing and research. The elective hours are planned to provide further training in journalism, business administration, education, chemistry, or other subjects required in these various fields.
- II. **Family Life and Early Childhood Education** which prepares students for work in fields in which knowledge of child development and skills in guidance are essential, such as: nursery schools, kindergartens, extended school services, child welfare, parent education programs, and guidance of children in the family.
- III. **Foods and Nutrition** which gives the student opportunities to prepare for service as dietitians in hospitals, colleges, public school lunchrooms, in tea rooms, and cafeterias: for food production, preparation with commercial firms, and for service in the many social organizations.
- IV. **Home Management and Family Economics** prepares students for positions with Public Utilities, T.V.A., Farmers Home Administration, equipment manufacturers and distributors, and other types of adult education as well as training leaders in all socio-economic fields covered in Agricultural Extension Service. The program is also designed for full-time homemakers.
- V. **Institution Food Management** trains both men and women to manage efficiently commercial, industrial, and institution food service operations.

Food production, consumption and service is today the third largest business in the world and demands highly trained personnel.

VI. Pre-Nursing Science provides Nursing Science majors with a basic 2-year program. Upon satisfactory completion, students will be assisted with transfer to an accredited School of Nursing for completion of the baccalaureate program in nursing. The Emory University, the University of Alabama, and other accredited schools of nursing have approved this program as meeting their pre-nursing requirements.

Graduate Work

The School of Home Economics offers work leading to the Master of Science degree and to the professional degree, Master of Home Economics. For further information consult the Home Economics course descriptions and the graduate catalog.

Child Study Laboratories

The School of Home Economics provides three laboratories for the study of child development and human relations, two nursery schools for children three to five years of age and a kindergarten for five year olds. The nursery schools meet from 9:00 a.m. to 12 noon. A hot lunch is served only to the 3 year olds. The kindergarten is in session from 1 to 4 p.m. Children admitted to the child study laboratories are selected from an application list. Applications may be placed with the office of Family Life and Early Childhood Education when the child is 1½ years old. Children are admitted on an early application basis.

Basic Curriculum for all Freshmen and Sophomores in Home Economics (HE)

FRESHMAN YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
EH 101	English Comp. ....5	EH 102	English Comp. ....5	EH 253	Lit. in English ....5
HE 104	Related Art ....5	HE 102	Basic Foods & Nutr. 5	HE 105	Fund. of Clothing .5
MH 107	College Algebra* ....5	CH 103	General Chemistry 4	CH 104	General Chemistry 4
HE 110	Fresh. Orientation .1	CH 103L	Gen. Chem. Lab. .1	CH 104L	Gen. Chem. Lab. .1
PE	Physical Education .1	HE 111	Fresh. Orientation .1	HE 112	Fresh. Orientation .1
		PE	Physical Education .1	LY 101	Library Science ....1
				PE	Physical Education .1

SOPHOMORE YEAR

CH 203	Organic Chem.****	EC 211	Accounting**** or	EC 200	General Economics 5
	or	HE 205	Clothing for the	HE 225	Textiles** or
HY 208	World History .....5		Family .....5	HE 233	Home Equip.*** or
HE 202	Meal Management .5	PG 211	Gen. Psychology .....5	HE 312	Food Science**** .5
SY 201	Sociology .....5	PS 204	Physics .....5	HE 307	Growth & Dev. of
HE 207	Principles of Child	SP 210	Public Speaking .....3		Children*****5
	Development .....3	PE	Physical Education .1	VM 210	Physiology .....5
PE	Physical Education .1			JM 315	Ag. Journalism .....3
				PE	Physical Education .1

* MH 107 required of all majors—Pr. for CH 103 and CH 103L.

** Required of Clothing Textile majors only.

*** Required of Home Management and Family Economics majors, and Family Life and Early Childhood Education majors only.

**** Required of Foods and Nutrition majors only.

***** Required of Family Life and Early Childhood Education majors only.

Suggested minors in Speech, Journalism or combination of both. (Consult your Adviser before scheduling SP 210 or JM 315.)

Public Speaking, Radio, and Television: SP 211, 273, 311 and 230, or 211, 230, 334 and 234. News writing, Reporting, Copyreading and Editing and Feature writing: JM 221, 223, 224 and 322.

Combination minor: JM 221, SP 211, or Workshop, JM 322, SP 230 or SP 210.

Curriculum for Majors in Clothing and Textiles

JUNIOR YEAR

FIRST QUARTER

HE 303	The House	5
HE 325	Fund. of Retailing ..	5
VM 311	Bacteriology	5
HE 372	Nutr. & Health	3

SECOND QUARTER

HE 395	Clothing Design	5
	Social Sc. Elective ..	
or		
PG 214	Ed. Psychology	5
	Prof. Elective	5
HE 385	Creative Weaving	3

THIRD QUARTER

HE 323	Home Mgt.	5
	Elective	5
	Prof. Elective	5
HE 305	Tailoring	3

SENIOR YEAR

HE 307	Growth & Dev. of Children	5
HE 415	History of Textiles ..	5
HE 443	Home Mgt. Res.	5
HE 431	Senior Seminar	3

HE 425	Hist. of Costume	5
HE 435	Textile Testing	5
	Prof. Elective	5
	Elective	3

HE 313	Home Furnishing	5
HE 405	Creative Costume Design	5
	Prof. Elective	5

Total—214 quarter hours

Electives must be chosen from one field to make a strong minor; suggested minors are Art, Chemistry, Economics, Education, Journalism, or Textile Technology.

HE 335 Retail Training (8 cr.) must be scheduled by students electing to minor in Retailing.

Curriculum for Majors in Family Life and Early Childhood Education

JUNIOR YEAR

FIRST QUARTER

HE 303	The House	5
PG 214	Ed. Psychology	5
	Prof. Elective	5
HE 353	Comm. & Fam. Health	3

SECOND QUARTER

HE 417	Guid. of Children ..	5
	Prof. Elective	5
VM 311	Bacteriology	5
HE 304	Home & Fam. Life ..	3

THIRD QUARTER

HE 313	Home Furnishing	5
HE 323	Home Mgt.	5
	Soc. Sc. Elective ..	5
	Elective	3

SENIOR YEAR

HE 437	Teach. Meth. in Pre-Primary Ed.	5
HE 443	Home Mgt. Res.	5
HE 457	Family Relationships ..	5
	Elective	3

HE 447	Directed Teaching in Pre-Primary Ed. ..	5
HE 463	Family Economics ..	5
HE 409	Family Nutrition	5
	Elective	3

IED 472	Books & Related Mater. for Child	4
HE 431	Senior Seminar	3
	Prof. Electives	8

Total—214 quarter hours

Electives must be chosen to build a strong minor in Economics, Education, Psychology, Sociology, Speech, or Journalism.

Curriculum for Majors in Foods and Nutrition

JUNIOR YEAR

FIRST QUARTER

HE 332	Nutrition & Diet. I ..	5
HY 208	World History	5
HE 355	Consumer Textiles ..	3
	Elective	5

SECOND QUARTER

HE 342	Nutrition & Diet. II ..	5
VM 311	Bacteriology	5
HE 352	Inst. Organization & Personnel Manage- ment	5
HE 442	Catering	3

THIRD QUARTER

HE 323	Home Management ..	5
PG 214	Ed. Psychology	5
HE 302	Table Service	3
	Elective	5

SENIOR YEAR

FL	French or German ..	5
HE 307	Growth & Dev. of Children	5
HE 412	Quantity Food Production	5
HE 322	Food Preservation ..	3

FL	French or German ..	5
HE 462	Experimental Foods ..	5
	Elective	5

HE 402	Diet Therapy	5
HE 422	Inst. Food Purchasing	3
HE 443	Home Mgt. Res.	5
HE 431	Senior Seminar	3

Total—214 quarter hours

Curriculum for Majors in Home Management and Family Economics

JUNIOR YEAR

FIRST QUARTER

HE 303	The House	.....5
HE 323	Home Management	5
HE 343	Int. Home Prob.	.....5
HE 372	Nutr. & Health	.....3

SECOND QUARTER

VM 311	Bacteriology	.....5
HE 313	Home Furnishings	..5
HE 333	Lighting Equip.	.....3
	Elective	.....5

THIRD QUARTER

PG 214	Ed. Psychology or Social Sc. Elective	..5
HE 307	Child Development	5
HE 355	Consumer Textiles	.....3
	Elective	.....5

SENIOR YEAR

HE 322	Food Preservation	..3
HE 304	Home & Family Life	3
HE 431	Senior Seminar	.....3
HE 443	Home Management Residence	.....5
HE 453	Consumer and the Market	.....5

HE 353	Com. & Fam. Health	.....3
HE 433	Food Equipment	.....5
HE 463	Family Economics	..5
	Elective	.....4

HE 401	Extension Organi- zation & Methods	..5
HE 417	Guid. of Children or	
HE 457	Family Relations	.....5
	Elective	.....5

Recommend electives: English, Social Science or Zoology.

Total—214 quarter hours

Curriculum in Institution Food Management

FRESHMAN YEAR

FIRST QUARTER

EH 101	English Comp.	.....5
MH 107	College Algebra	.....5
HE 102	Basic Foods & Nutr.	.....5
LY 101	Library Science	.....1
PE	Physical Education	..1
MS	Military Tr.—Men or Elective—Women	..1

SECOND QUARTER

CH 103	General Chemistry	4
CH 103L	Gen. Chem. Lab.	..1
EH 102	English Comp.	.....5
HY 208	World History	.....5
PE	Physical Education	..1
MS	Military Tr.—Men or Elective—Women	..1

THIRD QUARTER

CH 104	General Chemistry	4
CH 104L	Gen. Chem. Lab.	..1
EH 253	Literature in English	.....5
HE 202	Meal Management	..5
PE	Physical Education	..1
MS	Military Tr.—Men or Elective—Women	..1

SOPHOMORE YEAR

CH 203	Organic Chemistry	5
EC 211	Accounting	.....5
SY 201	Sociology	.....5
PE	Physical Education	..1
MS	Military Tr.—Men or Elective—Women	..1

EC 212	Accounting	.....5
EC 201	Economics	.....5
PS 204	Physics	.....5
PE	Physical Education	..1
MS	Military Tr.—Men or Elective—Women	..1

PG 211	General Psychology	5
VM 210	Physiology	.....5
EC 202	Economics	.....5
JM 315	Agr. Journalism	.....3
PE	Physical Education	..1
MS	Military Tr.—Men or Elective—Women	..1

JUNIOR YEAR

HE 412	Quantity Food Product	.....5
EC 341	Business Law	.....5
SP 210	Public Speaking	.....3
	Elective	.....5

VM 311	Bacteriology	.....5
HE 352	Inst. Org. & Per- sonnel Management	5
HE 372	Nutrition & Health	3
	Elective	.....5

EC 333	Salesmanship	.....3
EC 331	Prin. of Marketing	..5
HE 362	Problems in Comm. Nutrition	.....3
	Electives	.....7

SENIOR YEAR

EC 432	Advertising	.....3
HE 432	Food Serv. Planning Lay-Out & Equip.	..5
HE 453	Consumer & the Market	.....5
	Elective	.....5

HE 462	Experimental Foods	5
DH 411	Food Plant Sanitation	.....5
HE 442	Catering	.....3
	Elective	.....5

HE 422	Inst. Food Purchasing	.....5
HE 482	Food Serv. Cost Cont.	.....5
	Electives	.....8

Total—214 quarter hours

Note: Students qualifying for ADA membership through therapeutic and administrative dietetics will be required to take HE 312, Food Science; HE 332, 342, Nutrition; HE 402, Diet Therapy, and PG 214, Educational Psychology.

Curriculum in Pre-Nursing Science (NS)

FRESHMAN YEAR

FIRST QUARTER

HE 104	Related Art	5
EH 101	English Comp.	5
MH 107	College Algebra	5
HE 110	Fresh. Orientation ..	1
PE	Physical Education ..	1

SECOND QUARTER

HE 102	Basic Foods	
	and Nutr.	5
EH 102	English Comp.	5
CH 103	General Chemistry ..	4
CH 103L	Gen. Chem. Lab. ..	1
HE 111	Fresh. Orientation ..	1
PE	Physical Education ..	1

THIRD QUARTER

HY 107	History of U.S.	5
ZY 101	General Zoology	5
CH 104	General Chemistry ..	4
CH 104L	Gen. Chem. Lab. ..	1
LY 101	Library Science	1
HE 112	Fresh. Orientation ..	1
PE	Physical Education ..	1

SOPHOMORE YEAR

CH 203	Organic Chemistry ..	5
SY 201	Sociology	5
ZY 102	Zoology* or	
VM 220	Human Anatomy & Physiology**	5
HE 207	Principles of Child Development	3
PE	Physical Education ..	1

PG 211	General Psychology	5
HY 208	World History* or	
VM 221	Human Anatomy and Physiology**	5
PA 330	Philosophy of Religion* or	
PS 204	Physics**	5
HE 372	Nutrition & Health	3
PE	Physical Education ..	1

EH 253	Lit. in English	5
HE 312	Food Science (Bio-Chemistry)	5
PG 214	Educational Psychology	5
HE 362	Problems in Community Nutr.	3
PE	Physical Education ..	1

Total—109 quarter hours

Note: Upon satisfactory completion of the 2-year pre-nursing program, students will be assisted with transfer to an accredited School of Nursing for completion of the baccalaureate program in nursing. Emory University School of Nursing and the University of Alabama School of Nursing have approved this program as meeting its pre-nursing requirements.

* Courses required only by Emory University.

** Courses required only by the University of Alabama.

School of Military Science

COLONEL ROBERT B. MARSHALL
Commandant and Professor of Military Science

STUDY OF MILITARY SCIENCE at Auburn University dates back to the Civil War period. The Morrill Land Grant Act of 1862 requires that military instruction be furnished to students. Instruction in Military Science is under the supervision of an officer of the Active Army who is detailed as Professor of Military Science. By appointment of the college authorities he is Commandant of the ROTC students. The Professor of Military Science is assisted by a staff of commissioned and non-commissioned officers of the Army. The curriculum in Military Science is divided into two courses, basic and advanced. A description of course requirements is discussed in the following paragraphs.

Basic Course

The basic course consists of a six-quarter block of instruction normally taken during the freshman and sophomore years. During the freshman year classroom instruction is taken all in one quarter, three hours per week, accompanied by two hours of drill per week. This course is given in the Fall, Winter, and Spring Quarters, and one credit hour is allowed. In the quarters wherein classroom instruction is not received, the student attends drill two hours per week, and for each quarter successfully completed, one credit hour may be earned.

In the sophomore year four hours of instruction (two classroom and two drill) are taken each week in three quarters, with one credit hour allowed per quarter.

Basic Camp

The basic camp consists of six weeks of field training conducted at an Army Post during the summer. Basic camp is not required for students completing the basic course described above. It is designed for transfer students who wish to substitute the successful completion of the basic camp for the six-quarters resident basic course and enroll in the advanced course. Transfer students may apply to the Professor of Military Science for deferment from their remaining basic ROTC requirement and enter into an agreement to complete basic camp and the advanced course. While attending basic camp students are paid at the rate of \$90.60 per month. Reimbursement to the student for travel expenses is made at a rate of six cents per mile to and from camp. Uniforms, quarters, medical care and rations are furnished by the government during the camp period.

Advanced Course

The Advanced Course is designed to produce officers for the Army of the United States, both the Active Army and the Reserve. Admission to the Advanced Course is on a best qualified basis. Because the number of applications received usually exceeds the quota allotted to this unit, possession of minimum qualifications does not insure selection. Successful completion of the Advanced

Course at Auburn University qualifies the student for a commission as 2nd Lieutenant in one of the following branches of the USAR: Adjutant General's Corps, Armor, Army Intelligence and Security, Artillery and Air Defense, Chemical Corps, Corps of Engineers, Finance Corps, Infantry, Medical Service Corps, Military Police Corps, Ordnance Corps, Quartermaster Corps, Signal Corps, and Transportation Corps, based on student's choice and needs of the Army. Students who are designated Distinguished Military Students may apply for a Regular Army commission, if accomplished prior to graduation and designation as a Distinguished Military Graduate. The advanced course consists of a six-quarter course, normally taken during the junior and senior years, designed to qualify the student for appointment in any of the aforementioned branches. Three credit hours are allowed for each quarter of the advanced course. For limitation on credit allowed toward meeting degree requirements, see engineering curricula. Students are paid subsistence pay of \$40.00 per month, not to exceed 20 months, while enrolled in the Advanced Course.

An advanced camp of six weeks duration must be attended by the student before he becomes eligible for a commission. Advanced camp is normally attended during the summer between the end of the junior and the start of the senior years. While attending advanced camp students are paid \$151.95 per month. Reimbursement to the students for travel expenses is made at a rate of six cents per mile to and from camp. Uniforms, quarters, medical care and rations are furnished by the government during the camp period. The applicant for the advanced course must:

1. Be a citizen of the United States.
2. Be physically qualified in accordance with standards prescribed by the Department of the Army.
3. Not have reached 28 years of age at time of appointment in the U.S. Army Reserve.
4. Have completed appropriate basic training (2 years basic course or basic camp) or have equivalent military or ROTC training in lieu thereof; have at least two (2) academic years to complete prior to graduation.
5. Have minimum overall academic average of 1.0.
6. Be selected by the Professor of Military Science and the President of Auburn University.
7. Enlist as a cadet in the U.S. Army Reserve.
8. Execute a written agreement with the Government to complete the two-year Advanced Course training and attend one Summer Camp (six weeks duration) preferably at the end of the first year of the Advanced Course. Agree in writing to accept an appointment as a commissioned officer in the Army Reserve and serve the prescribed period of duty.

Financial Assistance Program

Public Law 88-647, 13 October 1964, established a financial assistance program for specially selected students of the Army ROTC. An individual selected for the program must be under 25 years of age on June 30 of the calendar year in which he is eligible for appointment as a second lieutenant and he must agree in writing to serve on active duty for four or more years. Selection is on a best qualified basis centrally controlled by the Department of the Army and by selection boards at the institutions administering the program. The financial assistance includes tuition, fees, books, laboratory expenses and

subsistence pay at the rate of \$50.00 per month for a maximum of four years. Students interested in the program should contact the Professor of Military Science as early as possible.

Army ROTC Aviation Program

Qualified second year advanced (MS IV) cadets may apply for enrollment in the Army ROTC Flight Training Program, subject to quota limitations. This program is conducted at no expense to the student. Participation in the program will not act to cause any reduction in the prescribed MS IV course. The course is an approved Federal Aviation Agency standardized flight instruction program consisting of 35 hours ground instruction and 36½ hours flight training. Satisfactory completion of the program of instruction will qualify the graduates for award of a FAA Private Pilot's certificate. Students must agree to a period of active duty for three years after completion of additional flight training in the active service.

Uniforms and Equipment

All students, both Basic and Advanced, are required to deposit the sum of \$30.00 with the Bursar of the University, prior to enrollment in ROTC. They are then furnished a uniform in good condition and other necessary supplies through the ROTC Supply Office. Upon completion of the ROTC course of instruction, or upon withdrawal of the student therefrom, the uniform and other supplies are turned in and the deposit returned to the student, less \$1.50 per quarter withheld by the Bursar of the University to cover the cost of cleaning and repair of uniforms, when applicable and to support ROTC activities as follows: Scholarship and marksmanship awards; special apparel and equipment for competitive drill teams and rifle teams; approved travel for drill teams and ROTC honoraries representing Auburn University and rifle teams representing Auburn University ROTC; uniforms for sponsors; the official Military Ball in an amount not to exceed \$.40 per cadet enrolled that quarter.

Distinguished Military Students

The Professor of Military Science may designate as a Distinguished Military Student a person who:

1. Possesses outstanding qualities of leadership, high moral character, and definite aptitude for the military service.
2. Has attained an academic standing in the upper half of his class. An exception may be made only in the case of an individual student whose standing is in the upper 10 per cent of his class in military subjects, or who has shown exceptionally high motivation toward a military career.
3. Has demonstrated his leadership ability through his achievements while participating in recognized campus activities.
4. Has attained a class standing in the upper third of his ROTC class in the Advanced Course, Senior Division, ROTC.

Distinguished Military Students may make application for a commission in the Regular Army any time subsequent to such designation, but not later than the date on which they are designated Distinguished Military Graduates. If accepted they will be commissioned in the Regular Army upon graduation.

Distinguished Military Graduates

The Professor of Military Science may designate as a Distinguished Military Graduate a person who was designated a Distinguished Military Student and who has maintained the high academic standards between the time of such designation and date of commission and graduation.

Selective Service Deferments

Students enrolled in the advanced course, Army ROTC, will be deferred under the provisions of the Universal Military Training and Service Act, as amended, according to the following:

1. The students are required to sign an ROTC deferment agreement. The provisions of the agreement require the students to complete the advanced course and to accept commissions if tendered by the Department of the Army.

2. The Professor of Military Science will notify the local selective service boards of all enrolled students of their selection for deferment. Deferment by the local selective service board is mandatory unless the student has received an order to report for induction.

Students enrolled in the basic course, Army ROTC, may request the Professor of Military Science to select them for deferment. The students are required to sign an ROTC deferment agreement. The provisions of the agreement require the students to complete the basic and advanced courses and accept commissions if tendered by the Department of the Army.

Deferred students dropped from ROTC, not in good scholastic standing, or not considered potential commissioned officers, will no longer be deferred. Students who decline to fulfill the terms of their ROTC deferment agreements pertaining to undergraduate work at the institution will be reported to Selective Service.

School of Naval Science

CAPTAIN J. B. SWEENEY, JR., USN
Commanding Officer and Professor of Naval Science

THE NAVAL RESERVE Officers Training Corps is established under authority of Title 10, U.S. Code, as amended.

A Captain in the Navy or a Colonel in the Marine Corps is assigned as the Professor of Naval Science. He is assisted by commissioned officers and others detailed from the Navy and Marine Corps.

The purpose of NROTC is to provide a steady supply of well-educated junior officers for the line and staff corps of the Regular Navy and to build up a reserve of trained officers who will be ready to serve their country at a moment's notice in a national emergency. NROTC graduates are given equal rank, equal treatment, and equal opportunities with the graduates of the United States Naval Academy.

Types of NROTC Students

Students in the NROTC are of four types:

1. Regular NROTC Students are appointed Midshipman, USNR. Such students assume an obligation to make all required summer practice cruises and upon acceptance of an appointment as a commissioned officer in the U.S. Navy or U.S. Marine Corps serve at the pleasure of the President. The Secretary of the Navy establishes criteria for voluntary termination of an officer's status to meet the needs of the naval service. At the present time the required minimum active duty service period of four years has been established by the Secretary of the Navy.

The Regular program briefly described above is one of the most remarkable educational opportunities ever offered. Public Law 729 (as amended by Public Law 88-647), signed by the President on 13 August 1946, instituted the selection and training of officer candidates for the Navy and Marine Corps in colleges and universities throughout the country.

For the Regular student the cost of tuition, fees, and textbooks will be paid by the Government. Necessary uniforms will be provided by the Government and students will receive subsistence pay for other expenses during college at the rate of \$50 per month. Active duty pay while on summer training is based on rate of pay for midshipmen of the Naval Academy (\$151.95 per month at present). Normally students will attend college for four years. While in college they may take any course leading to a baccalaureate or higher degree except the following:

Agronomy
Animal Husbandry
Animal Science
Art
Dairy Manufacturing
Dairy Production
Dairy Science
Dentistry
Dramatics
Entomology
Floriculture

General Agriculture
Horticulture
Hotel Administration
Industrial Arts
Landscape Architecture
Law
Medicine
Music
Pharmacy
Physical Education
Poultry Science

Pre-dentistry
Pre-medicine
Pre-theology
Pre-veterinary
Real Estate
Religion
Soil Conservation
Soils
Theology
Veterinary Medicine
Wildlife Management

In addition to the requirements of their major, Regular NROTC students are required to take 33 quarter hours of Naval Science and complete one year of college mathematics and one year of physics by the end of their sophomore year. In those instances where a Regular NROTC student has received credit at the university for one year of college mathematics, such credit having been established by means of advanced placement tests, the Chief of Naval Personnel will consider that the mathematics requirement has been met. The same type of consideration may be applied to the physics requirement of the Regular NROTC student. Also, in order to strengthen the courses in Principles and Problems of Leadership (NS 412 and NS 413), a minimum of 3 hours in Psychology is required as a prerequisite. Toward meeting this requirement, PG 311—Behavior of Man, 3 hours, will be scheduled as an additional requirement for all NROTC students to qualify for a commission and must be completed not later than the end of their junior year. An exception to this rule will be made in the case of NROTC students whose curriculum requires PG 211—General Psychology, and completion of this course will be considered as meeting requirements as stated above.

They will be required to make two summer cruises and take one summer period of aviation-amphibious indoctrination, lasting from six to eight weeks each, and upon graduation must accept a commission as Ensign, USN, or Second Lieutenant, USMC, if offered. If at the end of four years they do not wish to remain in the regular Navy or Marine Corps, and, in the event of the termination of their commission, they must accept a commission as a Reserve Officer in the United States Navy or the United States Marine Corps, if offered.

Entrance to this Regular program described above is effected through the medium of nation-wide competitive examination given by the Naval Examining Section during December of each year for selection of NROTC students to enter the Regular program for the following Fall. Application blanks to take the examination and information bulletins describing this program are made available each Fall at all high schools, colleges, and Offices of Naval Officer Procurement. For more complete details, contact the Professor of Naval Science of this university.

2. Contract NROTC students have the status of civilians who have entered into a mutual contract with the Navy. They are not entitled to the compensation or benefits paid Regular NROTC students except that they are entitled to a uniform issue, Naval Science textbooks, subsistence pay during their final two years of NROTC training, and practice cruise compensation. Contract NROTC students, if in all respects qualified, are commissioned as Reserve Officers in the United States Navy or Marine Corps upon successful completion of the course. They are required to serve on active duty for a period of three years and retain their commission for a total of six years, unless sooner released by the Secretary of the Navy. Contract students commissioned in the United States Marine Corps may receive commissions as Regular officers, if accepted under current quotas, and will have the same options of service that Regular NROTC students have.

While in the university, a Contract student may take any curriculum which leads to a baccalaureate or higher degree. This does not, however, entitle the student to any delay of active duty requirements after attaining the basic requirements for a baccalaureate degree and commissioning. In addition to the requirements of their major and 33 quarter hours of Naval Science, Contract students must complete satisfactorily by the end of their second year in the program one of the following requirements: (a) Mathematics through trigonometry (in secondary school or college); or (b) One quarter of college mathe-

matics. If a Contract NROTC student has received credit at the university for one quarter of college mathematics, the Chief of Naval Personnel will consider that the mathematics requirement has been met. Contract NROTC students must also meet the same requirement of Psychology as indicated above for Regular NROTC students. Contract students are required to make only one cruise, normally between the junior and senior years. During this training period, Contract students will be paid at the same rate as Regular students.

During their junior and senior years in the NROTC program, Contract students receive subsistence pay of \$40 per month provided they fulfill the following requirement:

Enlist in the Naval or Marine Corps Reserve (inactive) for the standard six-year reserve obligation. Those students already serving under a reserve enlistment contract must agree to extend their enlistment if necessary to insure two years of enlisted retainability after receipt of the baccalaureate degree.

The Reserve Officers Training Corps Vitalization Act of 1964 states that though in an enlisted status during the years enrolled in the advanced Contract program, this time cannot be computed for length of service for a commissioned officer.

Advanced course students who are disenrolled from the program for reasons beyond their control or who, without willfully violating the terms of their contract, are disenrolled from the program, may be discharged from their reserve status at the same time, if they so request.

Contract NROTC students are selected by the Professor of Naval Science prior to the beginning of the Fall Quarter.

3. Two-Year Advanced Course Contract students are eligible to receive all benefits, and are subject to the same conditions of service, as the four-year Contract student who has reached junior status. They must meet the academic and physical requirements of the four-year Contract program, except waivers are granted for visual acuity which falls below 20/40, depending on the option selected. Applications must be received by April 15th of the sophomore year. If selected, applicants will attend a six-week summer training program prior to enrollment in the junior year.
4. Naval Science Students: With the approval of the academic authorities, and with certain exceptions, students disenrolled from the Regular or Contract NROTC programs may be permitted to pursue Naval Science courses for the purpose of fulfilling the university's requirement of six quarters of ROTC. They are not eligible to make NROTC cruises nor to be paid compensation or benefits.

General Qualifications for Enrollment

In general, each candidate for enrollment in the NROTC must meet the following requirements:

1. Be an unmarried male citizen of the United States, never have been married, and agree to remain unmarried until commissioned or disenrolled.
2. Have attained his 17th birthday on or before July first of the year of enrollment and be of such age that he will not have attained his 25th birthday before July first of the year he will be commissioned. The Professor of Naval Science is authorized to waive the minimum age requirement for Contract students of the freshman class in those cases where he considers the student of sufficient maturity to undertake the Naval Science courses and drills.

3. Be morally qualified and possess officer qualifications and character as evidenced by appearance, scholarship, extracurricular activities, and record in his home community.

4. Be at least a high school graduate or person of equivalent educational level if selected competitively; or be enrolled in good standing and attending an NROTC institution if selected by the Professor of Naval Science.

5. Be physically qualified in accordance with the current manual of the Medical Department requirements for entrance into the Naval Academy.

Equipment

Uniforms, Naval Science textbooks, and other equipment necessary to the Navy program will be furnished by the government to Regular and Contract students. The uniform will be worn only when students are engaged in drills or other naval activities prescribed by the Professor of Naval Science.

Selective Service Deferment. 1. Regular and Contract students are draft deferred under the Selective Service Extension Act of 1951 from the time of executing their oath of office or contract. However, all males are required by law to register with their local draft board upon reaching age 18.

2. NROTC students dropped from the program become eligible for the draft upon separation from the NROTC. In addition, Regular students will revert to their enlisted status to fulfill the remaining period of their six-year military obligation incurred at the time of appointment as Midshipman, USNR. Advanced course Contract students will revert to their enlisted status unless discharged.

3. The Department of Naval Science will keep the appropriate local draft board informed as to the status of each student under paragraphs 1 and 2 above.

Curriculum. The Naval Science curriculum consists of five hours per week for all courses with exception of the sophomore courses which consist of four hours per week. Two hours each week are spent on practical work or drill. The remaining hours per week are spent in classroom work. The Naval Science subjects carried during the four-year curriculum are listed below.

FIRST YEAR
1st Qtr. Naval Orientation (NS 111)
2nd Qtr. Sea Power (NS 112)
3rd Qtr. Sea Power (NS 113)

SECOND YEAR
1st Qtr. Naval Weapons (NS 211)
2nd Qtr. Naval Weapons (NS 212)
3rd Qtr. Naval Weapons (NS 213)

(U. S. N. Candidates)

THIRD YEAR
1st Qtr. Navigation (NS 311)
2nd Qtr. Navigation and Introduction to Naval Operations (NS 312)
3rd Qtr. Naval Operations (NS 313)

FOURTH YEAR
1st Qtr. Naval Engineering (NS 411)
2nd Qtr. Naval Engineering and Introduction to Principles and Problems of Leadership (NS 412)
3rd Qtr. Principles and Problems of Leadership (NS 413)

(U. S. M. C. Candidates)

THIRD YEAR
1st Qtr. Evolution of the Art of War (NS 321)
2nd Qtr. Evolution of the Art of War (NS 322)
3rd Qtr. Modern Basic Strategy and Tactics (NS 323)

FOURTH YEAR
1st Qtr. Amphibious Warfare Part I (NS 421)
2nd Qtr. Amphibious Warfare Part II (NS 422)
3rd Qtr. Leadership, The Uniform Code of Military Justice (NS 423)

Each of the above subjects carries 3 quarter hours of credit, with the exception of the sophomore courses which carry 2 quarter hours of credit. These hours of credit will be considered as a part of the normal quarterly load re-

quired for NROTC students. Graduation requirements may be increased, depending upon curriculum.

Flight and Ground Instruction. A program of flight and ground instruction is offered eligible NROTC students who have completed their sophomore year. This training may enable students to become eligible for a private pilot's license. Flight training under the program is at Government expense and is in addition to the presently prescribed Naval Science curriculum for NROTC students.

Distinguished NROTC Graduates. The Professor of Naval Science may designate as a Distinguished NROTC Graduate any candidate who possesses outstanding qualities of leadership, high moral character, a definite aptitude for the naval service, and who has distinguished himself in his chosen academic major.

In order to qualify for this designation, a candidate must achieve an academic standing in his major field equivalent to "graduation with honor" and must also achieve an equivalent standing in aptitude and Naval Science subjects.

School of Pharmacy

SAMUEL TERRY COKER, *Dean*

THE SCHOOL OF PHARMACY is a member in good standing of the American Association of Colleges of Pharmacy, the object of which is to promote pharmaceutical education. It is also fully accredited by the American Council on Pharmaceutical Education, the object of which is to formulate the educational, scientific and professional principles and standards which approved Schools of Pharmacy are expected to meet and maintain.

Careers in Pharmacy.—The thorough academic background provided by the five-year curriculum prepares students to pursue a variety of careers. Excellent opportunities exist in the following area: community or retail pharmacy, wholesale pharmacy, industrial pharmacy (research, product development, analytical control and product manufacture, sales and distribution), hospital pharmacy, public health, Food & Drug Administration, toxicology, and research and teaching after further education. Pharmacy, especially hospital pharmacy, offers wonderful opportunities for women. These are but a few of the many opportunities that await registered pharmacists of the future.

The Pharmacy Curriculum.—The five-year curriculum leading to the degree of Bachelor of Science in Pharmacy is designed to prepare students for the varied opportunities available to registered pharmacists. The curriculum also offers an opportunity for students to include cultural subjects helpful in preparing for their role in the social, cultural and political life of the community.

Students are admitted to the curriculum in pharmacy after successfully completing with acceptable grades one of the following prescribed pre-pharmacy programs.

1. **The 1-4 Plan**—includes one year of pre-pharmacy, which may be taken in the first year of the School of Pharmacy at Auburn or any accredited institution offering the prescribed courses. Students taking pre-pharmacy at Auburn will be on the 1-4 plan.

2. **The 2-3 Plan**—includes two years of prescribed pre-pharmacy courses at an accredited institution prior to transferring to Auburn. A minimum of nine quarters is then required in the School of Pharmacy.

Transfer students from Junior colleges may receive no more than 103 quarter hours credit (equal to the first two years of the Pharmacy curriculum), while students transferring from four-year institutions will receive no more than 123 quarter hours credit for work completed in a non-pharmacy curriculum.

At the beginning of the third year, students may choose either a professional option in preparation for general practice, including hospital pharmacy, or a scientific option in preparation for industry, medical school, research or teaching. The program of each student under either option must be approved by the adviser and those choosing the scientific option must have the approval of the Dean. Both options will adequately prepare students for State Board examinations. It is hoped that these options will motivate the superior student to achieve an educational level consistent with his ability and interests.

Approved electives should be chosen equally between professional or scientific and the liberal arts subjects.

Students who are qualified and have the prerequisites may take up to 10 hours of graduate courses in their fifth year. Such work cannot be applied toward both the undergraduate and graduate degrees. Registration in graduate courses must be approved by the Dean of the Graduate School.

Attention is called to the following regulation of the American Council on Pharmaceutical Education: "No student may graduate from a recognized college or school of pharmacy who has spent less than three scholastic years of nine quarters or six semesters in residence at said school or college." Students who transfer from colleges or schools of pharmacy approved by the American Council on Pharmaceutical Education will be accepted if they have a 1.0 ("C") average in courses completed at the college or school of pharmacy, as well as an overall average of 1.0 ("C").

Scholarships and Loans.—Information concerning available scholarships and loans may be obtained by contacting the Director of Student Financial Aid, or the Dean, School of Pharmacy, Auburn University.

Pharmacy Extension Program.—A program of extension and continuing education for Alabama pharmacists now is in operation. The rapid advancements being made in the pharmaceutical sciences make it imperative to bring new knowledge and refresher courses to the pharmacist in or near his home. Meetings will be held throughout the year, enabling most Alabama pharmacists to avail themselves of this educational service. Faculty members of the School, as well as experts in industry and in state and federal governmental agencies, will serve as instructors.

Curriculum in Pre-Pharmacy (P-PY)

FIRST YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
EH 101	English Comp. ....5	EH 102	English Comp. ....5	BY 205	Pharmaceutical
MH 121	College Math. ....5	MH 122	College Math. ....5		Botany .....5
CH 103	General Chemistry ..4	CH 104	General Chemistry ..4	HY 107	United States Hist. 5
CH 103L	Gen. Chem. Lab. ..1	CH 104L	Gen. Chem. Lab. ..1	CH 105	General Chemistry ..3
MS	Military Training ....1	MS	Military Training ....1	CH 105L	Gen. Chem. Lab. ..2
PE	Physical Education ..1	PE	Physical Education ..1	MS	Military Training ....1
				PE	Physical Education ..1

Curriculum in Pharmacy (PY)

SECOND YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
CH 206	Quant. Analysis ....5	EC 200	General Economics 5	PS 206	General Physics .....5
PC 211	Gen. Psychology or	PS 205	General Physics .....5	PY 102	Pharmaceutical
SY 201	Introduction to	ZY 101	General Zoology .....5		Arithmetic .....5
	Sociology .....5	MS	Military Training ....1	ZY 102	General Zoology .....5
PY 101	Intr. to Pharmacy ....3	PE	Physical Education ..1	MS	Military Training ....1
SP 210	Public Speaking .....3			PE	Physical Education ..1
MS	Military Training ....1				
PE	Physical Education ..1				
PY 100	Phar. Convocation* 0				

* Required of all Pharmacy students each quarter. Professional topics will be discussed by visiting lecturers, faculty and students.

THIRD YEAR**

FIRST QUARTER

CH 207 Organic Chemistry	5
EC 211 Intr. Accounting	..5
PY 306 Pharmacognosy I	....5
Approved Elective	..3

SECOND QUARTER

CH 208 Organic Chemistry	5
PY 201 Inorganic Pharmaceutical Chemistry	..5
VM 200 Gen. Microbiology	..5
PY 202 Pharmaceutical Terminology	.....2

THIRD QUARTER

CH 301 Biochemistry***	....5
PY 203 Organic Pharmaceutical Chemistry	..5
VM 204 Pathogenic Microbiology	.....5
PY 204 Drug Marketing***	3

FOURTH YEAR

PY 301 Pharmaceutical Technology I	.....5
PY 302 Organic Pharmaceutical Chemistry	..5
PY 309 Pharmacology I	.....5
Elective	.....3

EH 345 Business & Prof. Writing	.....5
PY 303 Pharmaceutical Technology II	.....5
PY 405 Pharmacology II	.....5
Elective	.....3

PY 304 Pharmaceutical Technology III	.....5
PY 307 Pharmacognosy II***	.....5
PY 406 Pharmacology III	.....5
Elective	.....3

FIFTH YEAR

PY 400 Disp. Pharmacy I	....5
PY 408 Pharmaceutical Economics***	....5
PY 407 Chemotherapeutic Drugs	.....5
PY 415 Pharmaceutical Jurisprudence	.....3

PY 401 Disp. Pharmacy II	..5
PY 404 Chemistry of Nat. Products	.....5
Prof. Elective	.....5

PY 402 Dispensing Pharmacy III***	....5
PY 414 Pharmaceutical Specialties***	.....3
PY 428 Public Health	.....5
Elective	.....2

Total—258 quarter hours

** Options may be chosen at the beginning of the third year. Advanced ROTC may be used as approved elective.

*** With consent of the adviser and approval of the Dean, those electing the scientific option may substitute courses of equal credit for these subjects.

A list of approved general, professional and scientific electives may be obtained from the adviser or the Dean's office.

Notes: 1. Proficiency in typing required for admission to 5th year.

2. Students are expected to participate in field trips to a pharmaceutical manufacturing plant during their junior or senior year, and to a wholesale drug company during their senior year.

3. A set of Class C Metric and Apothecaries' weights, which may be purchased from Pharmacy Supply, are required for all Pharmacy laboratories.

School of Science and Literature

EDWARD H. HOBBS, III, *Dean*

THE SCHOOL OF SCIENCE AND LITERATURE, oldest of Auburn University's schools, offers work leading to the Bachelor of Science and Bachelor of Arts degrees. It is the only school on the campus which had its origin when Auburn was a denominational institution. For many years it was known as the Academic Faculty and the work offered was referred to as the General Course. The State of Alabama assumed charge of Auburn in 1872 and the work then offered which is now retained is administered by the School of Science and Literature. The school is composed of eight departments in which instruction is offered by more than 200 faculty members.

The School of Science and Literature has a two-fold purpose. First, it offers work designed to equip the student with a broad and liberal education, enabling him to care for himself better and to discharge more effectively the duties of a citizen. A second purpose is to function as the service division of the University.

Degree Courses

The Departments of Economics and Sociology, English, Foreign Languages, History and Political Science, Mathematics, Philosophy, Physics, Secretarial Administration, and Speech are in the School of Science and Literature. In general, the curricula offered in this school are based on various combinations of courses presented by these departments, but in some of the curricula certain courses are required which are offered by other schools of the University.

Outlines of all work required in the curricula in Business Administration, Mathematics, Physics, Applied Physics, Pre-Dentistry, Pre-Law, Pre-Medicine, Pre-Veterinary Medicine, Secretarial Administration, and Science and Literature are recorded in detail on pages 151-157 inclusive.

In the other curricula offered in this school the work required in the freshman and sophomore years is recorded on page 149. During the junior and senior years the student must complete a major of seven 5-hour courses and two minors of three 5-hour courses each or a double minor of six 5-hour courses. Any course to be counted in the major and minors must be numbered 200 or above. Required sophomore courses are not counted on the majors and minors. The work constituting the major must be elected from courses offered by one department or by two closely related departments upon the advice of the dean and the heads of the departments concerned. The work composing each minor must be selected from a single department. The major and minors will normally be selected from different departments, but the double minor will be in one department. Other work will be elected upon advice of the dean to meet the total requirement of 108 quarter hours during the junior and senior years.

The head of the department in which the student majors—or someone designated by him—automatically becomes the student's adviser and is charged with the responsibility of outlining the student's major work. The minors are to be selected in consultation with the head of the department in

which the student majors, but the heads of the departments in which the student minors will prescribe the work to be completed in those fields. The outline of the work constituting the major and minors must be transmitted to the dean of the school before the student registers for his junior year of work.

A Service Division

One of the very important functions of the School of Science and Literature is to serve the professional schools on the campus. Whatever curriculum a student may elect, whether it be Engineering, Agriculture, Education, Home Economics, or any other, he must take certain fundamental courses in English, mathematics, history, economics, and sometimes physics, foreign languages, public speaking, journalism, etc. All of these courses at Auburn are offered only in the School of Science and Literature, thereby eliminating unnecessary duplication and saving cost. The student who is preparing to become a professional teacher spends a large portion of his time in this school acquiring a fundamental education in the subject matter which he expects ultimately to teach and in broadening his education in general subjects. He takes his professional work in teacher-training in the School of Education. A student entering Auburn University who has not yet decided what particular vocation he desires to pursue will naturally register in the School of Science and Literature and may, if he so elects, transfer later to a technical school in the institution. Courses in other divisions of the institution are open to election by students registered in the School of Science and Literature.

Foreign Language. — In all curricula in this school that require three quarters in a foreign language, the work must be in one language.

Cooperative Program in Business Administration, Mathematics, Physics and Applied Physics

Cooperative programs in Business Administration, Mathematics, Physics and Applied Physics are programs of education which offer students in these curricula an opportunity to integrate their academic training with practical experience. Students alternate each quarter between school and a work assignment provided through the Cooperative Coordinator by business, industrial, governmental and banking organizations. For further information, write Director of Cooperative Education, 107 Ramsay Hall, Auburn University.

Off-Campus Continuing Education Services

In the School of Science and Literature, teaching and research staff members of various departments engage in continuing education programs on and off campus. Such programs are directed toward serving communities and business areas under grants and special appropriations.

Curriculum in Science and Literature (SL) and Pre-Law (PL)

Students desiring to pursue a curriculum leading to the degree Bachelor of Arts with majors in English, Journalism, Foreign Language, History, Philosophy, Speech and Sociology; or a curriculum leading to the degree Bachelor of Science with majors in Biological Sciences, Chemistry, Economics, Geography, Mathematics, Physics, and those preparing for Law School should select this curriculum. Prospective majors should consult departmental requirements beginning on page 149. This curriculum is designed to meet the minimum requirements for admission to standard law schools by the end of the junior year.

FRESHMAN YEAR

FIRST QUARTER			SECOND QUARTER			THIRD QUARTER		
GY 102	Prin. of Geography†	5	EH 101	English Comp.	5	EH 102	English Comp.	5
HY 107	United States Hist.	5	MH 122	College Math.†	5	FL	Foreign Language*	5
MH 121	College Math.†	5		Science (ZY 101 or			Science (ZY 102 or	
LY 101	Use of Library	1		CH 103, 103L)††	5		CH 104, 104L)	5
MS	Military Training	1	MS	Military Training	1	MS	Military Training	1
PE	Physical Education	1	PE	Physical Education	1	PE	Physical Education	1

SOPHOMORE YEAR

FL	Foreign Language	5	EH 253	Lit. in English	5	EC 200	Prin. of Economics	5
PO 209	U.S. National Gov't	5	FL	Foreign Language	5	EH 254	Lit. in English	5
SY 201	Intr. Sociology**	5	PO 210	U.S. State Gov't	5	PG 211	Psychology**	5
MS	Military Training	1	MS	Military Training	1	MS	Military Training	1
PE	Physical Education	1	PE	Physical Education	1	PE	Physical Education	1

Women students will take Hygiene in the Freshman year and Current Events in the Sophomore year in lieu of Military Training.

† Not open to juniors or seniors.

‡ Majors in Mathematics and Physics must begin with MH 160 and follow it with MH 161, 162, 263, 264.

†† Majors in Mathematics or Physical Sciences will take CH 103-103L and CH 104-104L.

* Students who have credit for two high school units in a foreign language must begin the third quarter of work in that language or take another language. Fifteen hours are required in the same language.

** Science majors will take two quarters of Science here but Sociology and Psychology are to be taken during the Junior or Senior Year.

For Science and Literature Students

During the junior and senior years the student not in advanced ROTC is to complete Philosophy 301 (3) and Logic 308 (3), seven additional five-hour courses in his major, three additional five-hour courses in each of two minors, five five-hour electives and four three-hour general electives; 211 quarter credit hours are normally required for graduation. All major and minor courses are to be numbered 200 or above. See available majors and minors below.

Majors in the Science and Literature (or Pre-Law) Curriculum are: Bachelor of Arts: English, Journalism, Foreign Language, History, Philosophy, Speech, Sociology; Bachelor of Science: Biological Sciences, Chemistry, Economics, Geography, Mathematics, Physics. (See Special Requirements for Departmental Majors below.)

Minors: Students who choose one of the above majors will select two minors, or one double minor, from the following: Art, Botany, Chemistry, Drama, Economics, Education, English, Foreign Languages, Geography, History, Home Economics, Journalism, Mathematics, Music, Philosophy, Physical Education, Physics, Political Science, Psychology, related subjects in Agriculture or Engineering, Secretarial Administration, Sociology, Speech, and Zoology. (Note: The student cannot major and minor in the same field.)

Special Requirements for Departmental Majors

The Economics Major. EC 202, 245, 360 and 451 must be included in this major.

The English Major. A fourth quarter of foreign language and HY 471 or 472 are required for the English major. In selecting his seven course program of 300-400 courses, the student should work out a balanced program with his English faculty adviser. This program should include: (a) one course from this group: EH 390, 401, 441; (b) three courses selected from different periods, each of the three emphasizing a different type of literature (i.e. fiction, poetry, drama); (c) three survey or period courses dealing with the literature of different ages.

The Foreign Language Major and Minor. A minor involves completion of FL 322, 332, or 352. A major requires the completion of seven courses above the one hundred level. These courses may be taken in two or more different languages. The major or minor student should consult the head professor regarding his program.

Students who have completed two or more years of a foreign language in high school should continue that language on the intermediate level. Credit is not granted for an elementary course when the student has pursued that language two years in high school.

The Geography Major. A major must include GY 305, 404 and 405.

The History Major. A major must include HY 207, 208 and, as a required elective, either PA 410, 420, 430 or 440.

The Journalism Major. Thirty-six hours of course work in Journalism are required. JM 221, 223, 224, 322 and 421 must be taken by all majors. The additional eleven hours must include either JM 323 or 465 plus JM 422-3 (Journalism Workshop, 6 hrs.) or JM 424 (Journalism Internship, 6 hrs.). Students majoring or minoring in Journalism should consult the professor of Journalism about their programs of study.

The Mathematics Major. A major in mathematics will consist of the sequences through MH 264 during the freshman and sophomore years. At the beginning of the junior year, the student must consult the department of mathematics on the selection of at least five additional junior and senior level courses to complete the major.

The Philosophy Major and Minor. A minor must include two historical philosophy courses and one other five-hour philosophy course. A major must include PA 307 or 308, 403, 404, 410, 420, 430, one 400 level course in history, and two five-hour courses in psychology.

The Sociology Major. A major consists of a minimum of 35 hours of sociology courses following SY 201, including SY 202, 203 and 309. In addition, in each sociology major EC 245 (Statistics) is required as an elective. The student should consult a member of the sociology staff each quarter of the junior and senior years regarding completion of his major.

The Speech Major. The areas of speech are (a) Fundamentals, (b) Public Address, (c) Interpretation, (d) Television-Radio-Film, (e) Speech Correction and Audiology, and (f) Group Methods. Students emphasizing general speech must take SP 200, 201, 211 and five additional courses with at least one in the areas of c, d, e and f. Students emphasizing Speech Correction and Audiology must take SP 200, 201, 211, PG 213 and 434 and five additional courses distributed over at least three of the above speech areas. Students emphasizing Television-Radio-Film must take SP 201, 211, 230, 235 plus either SP 234 or 236; SP 334 or 336 or 338; SP 436 or 438 or 439 and one other course in area a, c, or f.

For Pre-Law Students

By the end of the junior year the student preparing for a career in law and desiring to qualify for the A.B. or B.S. degree (awarded at the end of the first year in Law School after completion of three years in this curriculum at Auburn), must have satisfactorily completed Philosophy 301 (3), Logic 308 (3), and the following five quarter-hour courses: Public Speaking 211, Argumentation and Debate 278, Accounting 211, Accounting 212

and History of Medieval England 471. In addition, selection from the following five-hour courses is strongly recommended for completion of the Junior year: Advanced Composition 390, Statistics 245, Corporation Finance 463, Public Finance 465, Political Science 407, Social Problems 202 and Cultural Anthropology 203. Those students wishing to obtain the bachelor's degree at Auburn before entering Law School should continue this curriculum and complete the usual major, minors and electives described above for Science and Literature students.

Business Administration (BA)

This program is designed to train for careers in the business world and government. During the first two years, emphasis is given to a liberal arts program of work which is so essential to all college graduates. The four-year curriculum gives the student a systematic introduction to, and understanding of the major areas of Accounting, Management, Marketing, Finance and Banking, Statistics, Personnel Management, Industrial Relations and Economics. Furthermore, during the junior and seniors years, opportunity is given the student to major or concentrate in a particular area of business, thereby qualifying him for more specialized work in business or government. Business management at top, middle and lower levels, increasingly demands the services of the business administration- and commerce-trained graduate.

FRESHMAN YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
EC 101	Intr. to Business* ..5	EH 101	English Comp. ....5	EH 102	English Comp. ....5
HY 107	U.S. History .....5	FL 121, 131 or 151,† or		FL 122, 132 or 152,† or	
MH 121	College Math. ....5	Science (ZY 101 or		Science (ZY 102 or	
LY 101	Use of Library .....1	CH 103) and ††5		CH 104) and ††5	
MS	Military Training ....1	MH 122	College Math. ....5	SP 211	Public Speaking ....5
PE	Physical Education ..1	MS	Military Training ....1	MS	Military Training ....1
		PE	Physical Education ..1	PE	Physical Education ..1

SOPHOMORE YEAR

EC 200	Prin. of Economics 5	EC 202	Economics II .....5	EC 245	Statistics .....5
EC 211	Intr. Accounting ....5	EC 212	Intr. Accounting ....5	EC 331	Prin. of Marketing ..5
PO 206	U.S. Government ....5	EH 253	Lit. in English ....5	PG 211	Gen. Psychology or
MS	Military Training ....1	MS	Military Training ....1	SY 201	Intr. to Sociology ..5
PE	Physical Education ..1	PE	Physical Education ..1	MS	Military Training ....1
				PE	Physical Education ..1

JUNIOR YEAR

EC 300	Business Mgt. ....5	EC 341	Business Law .....5	EC 350	Labor Problems ....5
EC 360	Money & Banking ..5		Group Elective .....5	EH 345	Bus. & Prof. Wrtg. 5
IE 301	El. Data Process ....5		Elective** .....5	SA 113	Business Typing*** 3
†PA 301	Intr. to Philosophy 3	†PA 308	Intr. to Logic .....3		Elective** .....5

SENIOR YEAR

EC 446	Business Cycles or		Group Elective .....5	EC 463	Corp. Finance .....5
EC 465	Public Finance .....5		Group Elective .....5		Group Elective .....5
	Group Elective .....5		Elective** .....5		Elective** .....5
	Elective** .....5		Elective .....3		Elective .....3
	Elective .....3				

Total—211 quarter hours

Women students will take Hygiene in the Freshman year and Current Events in the Sophomore year in lieu of Military Training.

* Not open to juniors or seniors, or those having credit in EC 200.

† Students with credit for two high school units in a foreign language must begin with the third quarter in that language or take another language.

†† Must include Laboratory.

‡ Not required of students in Advanced ROTC Program.

*** Electives chosen in consultation with adviser.

*** If a student has had ½ unit of high school credit in typing, he is not required to take SA 113.

GROUP ELECTIVES

EC 311-12 Intermediate Accounting	EC 460 Economic Development of the South
EC 314 Income Tax Accounting	EC 462 Monetary Theory and Policy
EC 321 Property Insurance	EC 464 Investments
EC 322 Life Insurance	EC 465 Public Finance
EC 323 Real Estate	EC 471 Foreign Trade
EC 332 Credits and Collections	EC 472 Economics of Transportation
EC 342 Business Law	EC 473 Traffic Management
EC 400 Industrial Management	EC 474 Advanced Statistics
EC 402 American Industries	EC 475 Quantitative Methods of Management
EC 404 Office Management	EC 476 Motor Transportation
EC 411-12 Cost Accounting	EC 480 Business Policies and Administration
EC 414 Adv. Income Tax Accounting	AA 417 Airline Operation
EC 416 Auditing	AA 418 Air Transportation
EC 417-18 Advanced Accounting	AS 401 Farm Management
EC 419 Governmental Accounting	AS 460 Intr. to Econometrics
EC 433 Retail Store Management	GY 304 Geography of South America
EC 434 Purchasing	GY 305 Geography of North America
EC 435 Advanced Marketing	GY 306 Geography of Europe
EC 436 Marketing Research Methods	GY 307 Geography of Asia
EC 437 Sales Management	GY 308 Geography of Africa
EC 438 Retail Merchandising	GY 405 Cultural Geography of the World
EC 442 Personnel Management	GY 407 World Resources
EC 444 Labor Legislation	IE 302 Production Control Functions
EC 445 Industrial Relations	IE 310 Work Measurement
EC 446 Business Cycles	IE 322 Quality Control
EC 449 Adv. Personnel Administration	PA 440 American Philosophy
EC 451 Intermediate Economic Theory	PG 461 Industrial Psychology
EC 452 Comparative Economic Systems	SA 400 Office Machines
EC 453 Econ. of Growth and Development	SP 273 Group Prob. Solving Through Discussion
EC 454 History of Econ. Thought	SY 201 Introductory Sociology
EC 455 Government and Business	SY 401 Population
EC 457 Economic History of Europe	SY 408 Industrial Sociology
EC 458 Economic History of the United States	

Secretarial Administration (SA)

The course in Secretarial Administration is designed to meet the needs of those who plan to fit themselves for secretarial positions in business, government and professional offices. The program of work outlined leads to the degree of Bachelor of Science.

In order to determine placement in the proper course, personal conferences with those students who have had shorthand and typewriting elsewhere will be held during registration.

FRESHMAN YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
EC 101 Intr. to Business***	5	EH 102 English Comp.	5	FL 121, 131 or 151**	5
EH 101 English Comp.	5	MH 121 College Math.	5	MH 122 College Math. or	5
HY 107 U.S. History	5	SA 101 Secretarial Science*	5	EH 108 Classical Lit.	5
LY 101 Use of Library	1	PE 112 Hygiene	1	SA 102 Secretarial Science	5
PE 111 Hygiene	1	PE Physical Education	1	PE 113 Hygiene	1
PE Physical Education	1			PE Physical Education	1

SOPHOMORE YEAR

EC 200 Prin. of Economics	5	EC 211 Intr. Accounting	5	EC 212 Intr. Accounting	5
FL 122, 132 or 152**	5	PG 211 Psychology	5	PO 206 U.S. Government	5
SA 203 Secretarial Science	5	SA 204 Secretarial Science	5	SP 211 Public Speaking	5
HY 205 Current Events	1	HY 205 Current Events	1	HY 205 Current Events	1
PE Physical Education	1	PE Physical Education	1	PE Physical Education	1

JUNIOR YEAR

EC 245 Statistics	5	SY 201 Intr. Sociology	5	EH 345 Bus. & Prof. Writ.	5
EC 341 Business Law	5	SA 403 Sec. Procedure	5	SA 301 Dictation	5
SA 400 Office Machines	5	Elective	5	SA 404 Adv. Sec. Procedure	5
PA 301 Intr. to Philosophy	3	SA 305 Filing	3	Elective	3

* Open to SA majors and others who have had SA 111 or equivalent typing credit.

** Students who have credits for two high school units in a foreign language must begin the third quarter's work in that language or take another language.

*** Not open to juniors or seniors, or those having credit in EC 200.

SENIOR YEAR

SECOND QUARTER

FIRST QUARTER	
EC 404 Office Mgt.	5
Elective	5
Elective	5
Elective	3

EC 442 Personnel Mgt.	5
SA 401 Dictation	5
Elective	5
Elective	3

THIRD QUARTER

SA 402 Office Appren-	
ticeship	5
Group Elective†	5
Group Elective†	5
Elective	3

Total—211 quarter hours

† Refer to page 152 for Group Electives.

Mathematics (MH)

This curriculum is designed to prepare students for graduate study and eventual careers as Mathematicians.

FRESHMAN YEAR

FIRST QUARTER

EH 101 English Comp.	5
*FL 121 Elem. French**	5
MH 160 Algebra & Trig.	5
LY 101 Use of Library	1
MS Military Training	1
PE Physical Education	1

SECOND QUARTER

EH 102 English Comp.	5
FL 122 Elem. French**	5
MH 161 Anal. Geom. & Cal. 5	
MS Military Training	1
PE Physical Education	1

THIRD QUARTER

EH 108 Classical Literature 5	
FL 221 Inter. French	5
MH 162 Anal. Geom. & Cal. 5	
MS Military Training	1
PE Physical Education	1

SOPHOMORE YEAR

EH 253 Lit. in English	5
MH 263 Anal. Geom. & Cal. 5	
PS 201 Mechanics	5
MS Military Training	1
PE Physical Education	1

EH 254 Lit. in English	5
MH 264 Anal. Geom. & Cal. 5	
PS 202 Heat, Snd. & Elec. 5	
MS Military Training	1
PE Physical Education	1

MH 331 Higher Algebra	5
Philosophy Elective 5	
PS 203 Electromag. & Lt.	5
MS Military Training	1
PE Physical Education	1

JUNIOR YEAR

*FL 151 Elem. German**	5
MH 420 Intr. to Analysis I	5
MH 431 Intr. Mod. Algebra	5
†PA 301 Intr. to Philosophy 3	

FL 152 Elem. German**	5
HY 207 World History	5
MH 421 Intr. to Analysis II 5	
Elective	3

FL 251 Inter. German	5
HY 208 World History	5
MH 422 Intr. to Analysis III 5	
Elective	3

SENIOR YEAR

MH 437 Linear Algebra	5
*Elec. 1 Sequence	5
Elective 2	5
Elective	3

MH 443 Linear Geom. or	
MH 444 Comb. Geom., Pl. or	
MH 447 Found. of Geom.	5
Elec. 1 Sequence	5
Elective 2	5
Elective	3

MH 428 Lin. Diff. Systems	5
Elec. 1 Sequence	5
Elective 2	5
Elective	3

Total—211 quarter hours

Women students will take Hygiene in the Freshman year and Current Events in the Sophomore year in lieu of Military Training.

† Not required of students in Advanced ROTC program.

* The order in which these sequences are taken may be interchanged.

** The French sequence may be replaced by 15 hours of Russian. Students who have credit for two high school units in a foreign language must begin the third quarter of work in that language.

1. These electives are to include any one of the following sequences: (a) PS 305 Introduction to Modern Physics, PS 401 Theoretical Physics I (mech.), PS 402 Theoretical Physics II (mech.), (b) ZY 101, ZY 102 General Zoology, ZY 300 Genetics or BY 401 Biological Statistics, (c) BY 101, BY 102 General Botany, ZY 300 Genetics or BY 401 Biological Statistics, (d) CH 103, 103L, 104, 104L, and 105, 105L, General Chemistry, or CH 207 Organic Chemistry.

2. The student must consult with the Department of Mathematics on the selection of these electives. They are used to meet the needs and interests of the individual students in line with fulfilling the objectives of this curriculum. They must be taken in the biological, physical or social sciences, literature, languages, history, education or mathematics.

Physics (PS)

The significant contributions of physics to the advancement of modern industry and technology are reflected in a marked demand for well-trained scientists in the field. Opportunities for a career in this science are to be found in the increasingly active industrial and governmental laboratories as well as

on the teaching and research staffs of colleges and universities. The curriculum in Physics is recommended to those who contemplate a career in teaching and/or research, while the curriculum in Applied Physics (see below) should appeal to those whose interests lie primarily in the applied aspects of the subject.

Good laboratory and library facilities are available for advanced studies and research in several fields of modern and classical physics. Current research activities include experimental studies of: nuclear reactions with 3 Mev accelerator; beta- and gamma-ray spectroscopy; cosmic ray particles; elementary particle interactions; gaseous discharges; magnetically contained plasmas; electrical properties of thin films; optical properties of solids; electron tunneling in insulators; Hall effect in metal hydrides; nuclear spin-lattice relaxation; ultra-structure by X-ray diffraction and by studies of the optical properties of biophysical media; molecular biophysics; diffraction grating rulings; Smith-Purcell effect; and, magneto-optics. In addition, theoretical investigations are presently being conducted in: oxide film kinetics; dielectric film growth; transition-metal band structure; and elementary particle theory—group and field.

FRESHMAN YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
CH 111	Chemistry .....5	CH 112	Chemistry .....5	CH 113	Chemistry .....5
HY 107	U.S. History .....5	EH 101	English Comp. ....5	EH 102	English Comp. ....5
MH 160	Algebra & Trig.* .....5	MH 161	Anal. Geom. & Cal. 5	MH 162	Anal. Geom. & Cal. 5
LY 101	Use of Library .....1	MS	Military Training ....1	MS	Military Training ....1
MS	Military Training ....1	PE	Physical Education ..1	PE	Physical Education ..1
PE	Physical Education ..1				

SOPHOMORE YEAR

EH 253	Lit. in English .....5	FL 121	Elem. French** .....5	FL 122	Elem. French** .....5
MH 263	Anal. Geom. & Cal. 5	MH 264	Anal. Geom. & Cal. 5	MH 361	Diff. Equations .....5
PS 201	Mechanics .....5	PS 202	Heat, Snd. & Elect. 5	PS 203	Electromag. & Lt. ..5
MS	Military Training ....1	MS	Military Training ....1	MS	Military Training ....1
PE	Physical Education ..1	PE	Physical Education ..1	PE	Physical Education ..1

JUNIOR YEAR

FL 151	Elem. German** .....5	FL 152	Elem. German** .....5	PS 303	Optics .....5
MH 362	Engr. Math. I .....5	PS 302	Electronics .....5	PS 415	Quant. Mech. ....5
PS 301	Inter. Elec. & Mag. 5	PS 305	Modern Physics .....5		Group Elective*** .5
	Elective .....3		Elective .....3		Elective .....3

SENIOR YEAR

PS 401	Theoretical Phys. I 5	PS 402	Theo. Phys. II .....5	PS 405	Nuclear Physics .....5
PS 412	Sem. in Mod. Phys. 1	PS 404	Thermodynamics ....5	PS 407	Advanced Lab. II ...2
	Group Elective .....5	PS 408	Advanced Lab. I ...2		Group Elective .....5
	Elective .....5		Group Elective .....5		Elective .....3
	Elective .....3				Elective .....3

Total—211 quarter hours

* Qualified students may begin with MH 161, and five additional hours in physics or mathematics will be taken.

** Students who have credit for two high school units in a foreign language must begin the third quarter of work in that language.

*** Students planning to do graduate work should elect MH 404.

GROUP ELECTIVES

CH 206 & Lab.	Quant. Analysis†	PS 409	Intr. to Reactor Physics I
CH 407	Physical Chemistry	PS 410	Intr. to Reactor Physics II
CH 408	Physical Chemistry	PS 413	Intr. to X-Ray Crystallography
MH 403-4	Engr. Math. II & III	PS 414	Electron Optics & Microscopy
MH 405	Matrix Theory Applications	PS 421	Advanced Electronic Circuits
MH 460	Numerical Analysis I	PS 435	Intr. to Solid State
PS 304	Applied Spectroscopy	PS 470	Health Physics
PS 403	Theoretical Physics III		

† Credit for CH 206 allowed only if CH 407 and CH 408 are completed.

Applied Physics (APS)

This curriculum provides a thorough foundation in physics and sufficient training in mathematics and related sciences to enable the graduates to enter industrial and governmental research laboratories. Many graduates in this curriculum elect to pursue further training for advanced degrees in Physics.

During the junior and senior years, 35 hours are designated as "technical electives." The student must choose the major portion of his electives from one of the following areas: chemistry, aerospace, electrical, or mechanical engineering. If mechanical engineering electives are chosen, at least 16 quarter hours must be completed from courses listed below. If aerospace, chemistry, or electrical engineering electives are chosen, at least 20 quarter hours must be completed from the courses shown. The remaining 15 or 19 quarter hours must be chosen from courses not required in physics, mathematics, or the related sciences.

FRESHMAN YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
CH 111	Chemistry .....5	CH 112	Chemistry .....5	CH 113	Chemistry .....5
HY 107	U.S. History .....5	EH 101	English Comp. ....5	EH 102	English Comp. ....5
MH 160	Algebra & Trig. *5	MH 161	Anal. Geom. & Cal. 5	MH 162	Anal. Geom. & Cal. 5
LY 101	Use of Library .....1	EG 102	Eng. Drawing .....2	MS	Military Training ....1
MS	Military Training ....1	MS	Military Training ....1	PE	Physical Education ....1
PE	Physical Education ....1	PE	Physical Education ....1		

SOPHOMORE YEAR

EH 253	Lit. in English .....5	ME 205	Statics** .....4	ME 321	Dynamics** .....4
MH 263	Anal. Geom. & Cal. 5	MH 264	Anal. Geom. & Cal. 5	MH 361	Diff. Equations .....5
PS 201	Mechanics .....5	PS 202	Heat, Snd. & Elect. 5	PS 203	Electromag. & Lt. .5
MS	Military Training ....1	MS	Military Training ....1	MS	Military Training ....1
PE	Physical Education ....1	PE	Physical Education ....1	PE	Physical Education ....1

JUNIOR YEAR

EE 263	Circuit Analysis I .5	PS 305	Modern Physics .....5	PS 415	Intr. Quant. Mech. 5
MH 362	Engr. Math. I .....5	PS 302	Electronics .....5	PS 303	Optics .....5
PS 301	Inter. Elec. & Mag. 5		Technical Elective .5		Technical Elective .5
IL 419	Utilization of Tools 1		Elective .....3		Elective .....3
	Elective*** .....3				

SENIOR YEAR

PS 401	Theo. Physics I .....5	PS 402	Theo. Physics II .....5	PS 435	Solid State .....5
PS 412	Sem. in Mod. Phys. 1	PS 404	Thermodynamics .....5	PS 407	Advanced Lab. II .2
	Technical Elective .5	PS 406	Advanced Lab. I .....2		Technical Elective .5
	Technical Elective .5		Technical Elective .5		Technical Elective .5
	Elective .....3				

Total—211 quarter hours

* Qualified students may begin with MH 161, and five additional hours in physics or mathematics will be taken.

** Students taking related courses in chemistry will take CH 303 (Organic Chemistry) instead of ME 205 and CH 304 (Organic Chemistry) instead of ME 321.

*** Students anticipating graduate work should use 10 hours of technical electives and an equal number of free electives to complete at least 10 hours in each of two foreign languages: French, German or Russian. Otherwise, free elective credits (up to 12 hours) must be earned in the areas of Philosophy, Literature, History, the Social Sciences, or the Fine Arts. (Students taking Advanced ROTC may schedule their military courses within the 12 hours of free electives and one of the technical electives.)

TECHNICAL ELECTIVES

In parenthesis following a course title are numbers indicating when the course should be taken. Example: (3-2) means the course should be taken during the junior year in the second quarter.

AE 301	Basic Aerodynamics .....(3-1) 5	AE 413	Theoretical Aerodynamics .....(3-3) 5
AE 404	High Speed Aerodynamics .....(4-1) 5	AE 414	Equilibrium Gasdynamics .....(4-3) 3
AE 405	Boundary Layer Theory .....(4-2) 3	AE 415	Rocket and Jet Propulsion .....(4-1) 5

† Credit for CH 206 allowed only if CH 407 and CH 408 are completed.

AE 431	Astronautics	(4-3)	5	ME 421	Heat Transfer	(4-3)	4
CH 206	& Lab. Quant. Analysis†	(3-3)	5	ME 450	Special Problems		1-5
CH 305	Organic Chemistry	(3-2)	5	MH 367	Math. Statistics I		5
CH 407	Physical Chemistry	(4-1)	5	MH 403	Eng. Mathematics II		5
CH 408	Physical Chemistry	(4-2)	5	MH 404	Eng. Mathematics III		5
CH 409	Physical Chemistry	(4-3)	5	MH 405	Matrix Theory and Applications		5
CH 410	Inter. Inorganic Chem. I	(3-1)	5	MH 428	Linear Differential Systems		5
CH 412	Chemical Thermodynamics	(4-2)	5	MH 460	Numerical Analysis I		5
EE 361	Circuit Analysis II	(3-2)	5	MH 461	Numerical Analysis II		5
EE 362	Circuit Analysis III	(3-3)	5	PS 304	Applied Spectroscopy		5
EE 363	Dist. Systems	(4-1)	5	PS 403	Theor. Physics III		5
EE 373	Elec. and Com. II	(4-1)	5	PS 405	Nuclear Physics		5
EE 443	Solid State Electronics	(4-2)	3	PS 408	Advanced Lab. III		2
EE 444	Digital Computers	(4-3)	3	PS 409	Intr. to Reactor Physics I		5
EE 471	Elec. and Com. III	(4-2)	5	PS 410	Intr. to Reactor Physics II		5
ME 208	Strength of Materials I	(3-1)	4	PS 413	X-Ray Crystallography		5
ME 322	Dynamics	(3-2)	4	PS 414	Electron Optics		5
ME 324	Fluid Mech. I	(3-3)	4	PS 417	Intr. to Biophysics		4
ME 325	Fluid Mech. II	(4-1)	4	PS 421	Adv. Electronic Circuits		5
ME 335	Metallurgy	(4-2)	4	PS 470	Health Physics		5

Curriculum in Pre-Professional Science

For Students in Pre-Medicine (PM), Pre-Dentistry (PD), and Pre-Veterinary Medicine (PV)

The Bachelor of Science degree is awarded to those completing the four-year curriculum before entering professional school. Students admitted to dental, medical or veterinary medical school before graduation, but after having completed the first three years as outlined in this curriculum at Auburn and including General Chemistry 105 and 105L, may transfer credits for the first year in professional school back to Auburn and receive the B.S. degree.

Pre-Veterinary Medicine students must follow closely the instructions indicated by asterisks and the footnote below.

FRESHMAN YEAR

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER	
HY 107	U.S. History	CH 103	General Chemistry 4	CH 104	General Chemistry 4
MH 160	Algebra & Trig.	CH 103L	Gen. Chem. Lab. 1	CH 104L	Gen. Chem. Lab. 1
ZY 101	General Zoology	EH 101	English Comp.	EH 102	English Comp.
LY 101	Use of Library	ZY 102	General Zoology	MH 161	Anal. Geom. & Cal. 5
MS	Military Training	MS	Military Training	MS	Military Training
PE	Physical Education	PE	Physical Education	PE	Physical Education

SOPHOMORE YEAR

BY 101	Gen. Botany	CH 207	Organic Chemistry	CH 208	Organic Chemistry
CH 105	Gen. Chemistry	PO 206	U.S. Government	EH 141	Medical Vocab.
CH 105L	Gen. Chem. Lab. 2	PS 206	Physics	PS 210	Physics
PS 205	Physics	MS	Military Training	MS	Military Training
MS	Military Training	PE	Physical Education	PE	Physical Education
PE	Physical Education	HY 205	Current Events*	HY 205	Current Events*
HY 205	Current Events*				

Women students will take Hygiene in the Freshman year and Current Events in the Sophomore year in lieu of Military Training.

*PRE-VETERINARY MEDICINE STUDENTS: Substitute PH 202 Veterinary Poultry for BY 101, AH 200 Intro. Animal Husbandry for CH 105 & 105L, AH 204 Animal Biochemistry and Nutrition for PO 206, and ZY 300 Genetics for PS 210. PV students continuing beyond the sophomore year, but not working toward the BS degree, are urged to choose from these courses: CH 105 & 105L, PS 210, PO 206, CH 206, PA 307 or 308, SP 211, EC 200 and EH 390. Students wishing to obtain the three-year combination B.S. degree after the freshman year of Veterinary school must take CH 105 & 105L, and complete the junior year's work as outlined. Those wishing to complete four years and obtain the B.S. degree before entering Veterinary school must take CH 105 & 105L and complete both the junior and senior years' work as outlined. Degree students should substitute group electives in the junior and senior years for ZY 300, ZY 302, and ZY 424.

JUNIOR YEAR

FIRST QUARTER

EH 390	Adv. Comp.	.....5
FL 151	German**	.....5
ZY 301	Comp. Anatomy	.....5
†PA 301	Intr. to Phil.	.....3

SECOND QUARTER

CH 206	Quant. Analysis	.....3
CH 206L	Quant. Anal. Lab.	2
FL 152	German**	.....5
SY 201	Sociology	.....5
‡PA 308	Intr. to Logic	.....3

THIRD QUARTER

CH 316	Phys. Chemistry	.....5
FL 251	German**	.....5
ZY 302	Vertebrate Embry.	5
	Elective	.....3

SENIOR YEAR

EC 200	Intr. to Economics	..5
ZY 300	Genetics	.....5
ZY 424	Anim. Physiology	..5
	Elective	.....3

PG 211	General Psychology	5
	Group Elective	.....5
	Group Elective	.....5
	Elective	.....3

SP 211	Public Speaking	.....5
	Group Elective	.....5
	Group Elective	.....5
	Elective	.....3

Total—211 quarter hours

** Students who have credit for two high school units in German must begin the third quarter's work.

*** Not required for graduation but highly recommended (for credit or audit) in preparation for Medical and Dental Aptitude tests and professional schools. Three quarters of Current Events may be used in place of a three-hour elective.

‡ Not required of students in Advanced ROTC Program.

GROUP ELECTIVES

CH 301	Biochemistry
CH 305	Organic Chemistry
EC 341-2	Business Law
EH 253	Literature in English
EH 357-8	American Literature
FL 252	Intermediate German
HY 207-8	World History

MH	Advanced Mathematics
SY 301	Sociology of the Family
SY 304	Minority Groups
VM 200	General Microbiology
ZY 308	Micrology
ZY 404	Medical Entomology

School of Veterinary Medicine

J. E. GREENE, *Dean*

THE SCHOOL OF VETERINARY MEDICINE offers a fully accredited program of training leading to the degree of Doctor of Veterinary Medicine. The curriculum requires four years in the professional school after completion of at least two years of the pre-professional course.

Admission

Two years of general college work, with a minimum honor point average of 1.25 on all courses attempted and on all required courses is required for admission. A grade of D on any required course will not be accepted. The Committee on Admissions of the School of Veterinary Medicine may require a personal interview with any applicant and may also require a reading comprehension test, or an examination on any required course. The School of Science and Literature offers a two-year Pre-Veterinary Medicine Curriculum which is available to residents of Alabama. Applications for admission to the pre-veterinary course should be made directly to the Admissions Officer, Auburn University.

Residents of states other than Alabama should complete the pre-professional requirements at institutions within their home state, since they are not eligible for admission to the pre-professional curriculum at Auburn University. Such work should include 10 quarter hours of inorganic chemistry, 10 quarter hours of organic chemistry, 10 quarter hours of physics, 5 quarter hours of genetics, 10 quarter hours of zoology, 10 quarter hours of English Composition, 10 quarter hours of college mathematics, 5 quarter hours of poultry science, 5 quarter hours of animal nutrition, 5 quarter hours of introductory animal science, 5 quarter hours of American history, and 5 quarter hours of medical vocabulary. Ten quarter hours of Latin or modern language may be substituted for medical vocabulary, or this course may be taken through the Correspondence Study Department, Auburn University. In addition to the above requirements, one year of Current Events as an elective is desirable. Three-semester-hour courses will be accepted as the equivalent in subject-matter content of five-quarter-hour courses.

Admission to the School of Veterinary Medicine must be gained through formal application not later than February 15 preceding the Fall Quarter in which admission is desired. Preliminary consideration for admission will be based on academic work completed prior to February 15. Final consideration will be based on academic work completed prior to June 15.

Applicants Should Submit the Following

1. Two completed applications for admission on form supplied by Auburn University. All applications must be submitted to the Dean, School of Veterinary Medicine, through proper channels by February 15 preceding admission date. (Only one transcript is required of students formerly enrolled at Auburn University.)

2. Two official transcripts from each college or university attended.

3. A list of courses in progress at time of application, if any.

4. Letters of recommendation from three persons vouching for character, integrity and general qualifications.

Those applicants who have not completed all requirements for admission at the time of application must submit by July 1 two supplemental official transcripts of any work completed after application is filed.

If a student is admitted to the School of Veterinary Medicine, he must submit in addition to the above, one completed physical examination report on a form supplied by Auburn University at least three weeks prior to date of registration (not required by students formerly enrolled at Auburn University), and an application processing fee.

The final selection of students is made by the Committee on Admissions of the School of Veterinary Medicine, Auburn University. These selections are made from the applicants who have been certified by the committees in the respective states after giving due consideration to scholastic record and general adaptability for the profession. The right is reserved to accept or reject any applicant. All applications for admission must be on file at the School of Veterinary Medicine by February 15 preceding date of admission.

Microscopes. — In order to be admitted to the School of Veterinary Medicine, students must own a compound microscope acceptable to the faculty. Students must furnish a microscope in all courses requiring the use of this instrument. Microscopes may be purchased through the Book Store of Auburn University.

Admission under the Regional Plan. — Under the Regional Plan for Veterinary Training, the School of Veterinary Medicine serves six states — Alabama, Florida, Kentucky, Louisiana, Mississippi and Tennessee. While there is no limit on the number of applications, the School's facilities make it necessary to restrict admissions.

The Land-Grant Institution in each state participating under the Southern Regional Education plan maintains a counseling and guidance service for students desiring admission to the School of Veterinary Medicine. Students attending other than Land-Grant Institutions of the several states should contact the counseling and guidance service for information and advice concerning courses which will be acceptable in the pre-veterinary curriculum. Inquiries should be made early and addressed to:

Alabama:	Dean, School of Science & Literature Auburn University Auburn, Alabama
Florida:	Dean, College of Agriculture University of Florida Gainesville, Florida
Kentucky:	Associate Dean, School of Agriculture and Home Economics University of Kentucky Lexington, Kentucky
Louisiana:	Head, Department of Veterinary Science Louisiana State University Baton Rouge, Louisiana
Mississippi:	Dean, School of Agriculture Mississippi State University State College, Mississippi

Tennessee: Dean of Resident Instruction
College of Agriculture
University of Tennessee
Knoxville, Tennessee

The procedure for making application for admission to the School of Veterinary Medicine under the Regional Plan varies in the several states. An officer, or board, in each state certifies applicants as to residence and evaluates the courses completed. Courses acceptable in the degree program at the State Land-Grant Institution will be considered acceptable in the Auburn University pre-veterinary program. An applicant who wishes to be included in his state's list of eligibles for entrance into the School of Veterinary Medicine should send his completed application together with three letters of recommendation and transcripts covering all college work completed to the appropriate address as indicated below:

Alabama: Dean, School of Veterinary Medicine
Auburn University
Auburn, Alabama

Florida: Secretary
Board of Control for Fla. Institutions of Higher Learning
Tallahassee, Florida

Kentucky: Chairman,
Committee on Regional Veterinary Training
University of Kentucky
Lexington, Kentucky

Louisiana: Chairman, Certification Committee
Louisiana State University
Baton Rouge, Louisiana

Mississippi: Executive Secretary
Board of Trustees for Institutions of Higher Learning
State Capitol
Jackson, Mississippi

Tennessee: Committee on Regional Veterinary Training
University of Tennessee
Knoxville, Tennessee

Scholastic Requirements

Students enrolled in the School of Veterinary Medicine who make a scholastic average less than 1.25 for any two quarters of one academic year may be dropped from the School of Veterinary Medicine for scholastic deficiency. Students who make a grade of "F" on any course may be required to withdraw from the School of Veterinary Medicine until such time as the course is offered again. Such students may be required to repeat certain other courses in the curriculum for that quarter.

Students who are dropped under the above provisions are eligible for admission to other curricula provided they meet the University scholastic requirements for continuation in residence. The scholastic penalties incurred while enrolled in the School of Veterinary Medicine will become a part of the student's record.

Veterinary Curriculum

Below are the subjects required for each of the four years in the School of Veterinary Medicine.

Fourth-year veterinary students will be required to continue in school during the Summer, Fall and Winter quarters. Following completion of the three quarters of senior academic work, each student will be required to serve a preceptorship of one quarter with a reputable practicing veterinarian. A certificate of satisfactory completion of a preceptorship will be required for graduation.

Curriculum in Veterinary Medicine (VM)

FIRST YEAR			
FIRST QUARTER		THIRD QUARTER	
VM 320 Anatomy I	5	VM 322 Anatomy III	5
VM 326 Histology	5	VM 328 Embryology	5
VM 330 Vet. Micro. I	5	VM 336 Physiology III	5
VM 318 Physiology I	3	VM 324 Vet. Genetics	3
SECOND QUARTER		SECOND YEAR	
VM 321 Anatomy II	5	VM 444 Physiology V	5
VM 327 Organology	5	VM 451 Pathology II	5
VM 331 Vet. Micro. II	5	VM 457 Vet. Parasit. II	5
VM 329 Physiology II	3	VM 437 Pharmacology II	3
THIRD QUARTER		THIRD YEAR	
VM 438 Pharmacology I	5	VM 501 Vet. Medicine II	5
VM 443 Physiology IV	5	VM 523 Veterinary Public Health I	5
VM 450 Pathology I	5	VM 530 Vet. Radiology	3
VM 458 Vet. Parasit. I	3	VM 503 Vet. Surgery I	3
		VM 527 Clinics II	2
		VM 540 Vet. Obstetrics I	2
		VM 531 Jurisp. & Ethics	1
FOURTH QUARTER		FOURTH YEAR	
PH 422 Avian Diseases	5	VM 555 Vet. Medicine VII	5
VM 500 Vet. Medicine I	5	VM 559 Vet. Medicine IX	3
VM 510 Vet. Medicine IV	5	VM 561 Vet. Medicine X	3
VM 526 Clinics I	2	VM 567 Clinics VI	2
VM 528 Applied Anatomy	2	VM 577 Clinics IX	2
		VM 552 Jurisp. & Ethics	1
		VM 563 Vet. Surgery V	1
		VM 573 Vet. Surgery VIII	1
		VM 556 Vet. Medicine VIII	5
		VM 588 Vet. Medicine XI	5
		VM 582 Seminar	3
		VM 568 Clinics VII	2
		VM 578 Clinics X	2
		VM 558 Applied Anatomy	1
		VM 564 Vet. Surgery VI	1
		VM 574 Vet. Surgery IX	1
		VM 562 Vet. Surgery IV	1
		VM 572 Vet. Surgery VII	1

Total—228 quarter hours

(See page 156 for Pre-Veterinary Medicine requirements)

Graduate Requirements

School of Veterinary Medicine master's degree candidates may be required to pass a preliminary oral or written examination to demonstrate adequate knowledge in their chosen fields. They must meet the general requirements for admission into the Graduate School. See Graduate School section of this catalog, memoranda issued by the School, and the Graduate School Catalog.

Continuing Education

The School of Veterinary Medicine provides formal courses to graduate veterinarians in a program of continuing education. On-campus courses are administered by the Continuing Education Committee of the School of Veterinary Medicine and off-campus courses are administered jointly by the School of Veterinary Medicine and the Cooperative Extension Service of Auburn University.

The Graduate School

W. V. PARKER, *Dean*

TAYLOR D. LITTLETON, *Assistant Dean*

ALL REGULATIONS governing the Graduate School are designed to equal or exceed the minimum standards recommended by the Commission on Colleges and Universities of the Southern Association of Colleges and Secondary Schools.

A student with a bachelor's degree from an accredited college or university may apply to the Dean of the Graduate School for admission. Application forms for admission may be secured from the Graduate School and must be received at least three weeks before registration. A transcript of undergraduate credits and satisfactory scores on the Aptitude Test of the Graduate Record Examinations must also be submitted. Every applicant must have a satisfactory undergraduate record and show adequate preparation in the field in which he desires to major as determined by the screening committee of the school or department concerned.

The Graduate School bulletin should be consulted for detailed information on the regulations of the Graduate School, the courses offered for graduate credit, the requirements for degrees, fellowships and assistantships, and other matters pertaining to graduate work in this institution. Undergraduates wishing to register for graduate courses should consult this bulletin for regulations concerning such registration. A bulletin may be obtained upon request from the Dean of the Graduate School.

The Graduate School administers graduate work leading to the degrees listed below.

The Master's Degree Program

Master of Science in the areas of Aerospace Engineering, Agricultural Economics, Agricultural Engineering, Agronomy, Animal Science, Animal Nutrition, Botany, Business Administration, Chemical Engineering, Chemistry, Civil Engineering, Dairy Manufacturing, Dairy Production, Economics, Education, Electrical Engineering, Entomology, Fisheries Management, Forestry, Home Economics, Horticulture, Mathematics, Mechanical Engineering, Nuclear Science, Ornamental Horticulture, Pharmacy, Physics, Poultry Science, Psychology, Radiological Sciences, Toxicology, Veterinary Medicine, Wild Life Management, and Zoology.

Master of Arts in the areas of English, History, and Speech.

Other Master's Degrees: Master of Agriculture, Master of Fine Arts, Master of Building Construction, Master of Business Administration, Master of Education, Master of Home Economics.

The Specialist in Education Program

Specialist in Education in the areas of Curriculum, Teaching, Administration, Supervision, and Guidance.

The Doctoral Degree Program

Doctor of Education in the areas of School Administration, Supervision and Guidance; and Curriculum and Teaching.

Doctor of Philosophy in the Departments of Agronomy and Soils, Animal Science, Botany and Plant Pathology, Chemistry, Electrical Engineering, English, Mathematics, Mechanical Engineering, Physics, Poultry Science, and Zoology-Entomology, and an interdisciplinary program in Agricultural Engineering.

Research Program with the Oak Ridge Associated Universities

Auburn University is one of the sponsoring institutions of the Oak Ridge Associated Universities research program located at Oak Ridge, Tennessee. Through this cooperative association our graduate research programs have at their disposal the facilities of the National Laboratories in Oak Ridge and the research staffs of these laboratories. When advanced degree candidates in certain areas have completed their residence work at Auburn it is possible, by special arrangement, for them to go to Oak Ridge to do their research problems and prepare their theses. In addition, it is possible for our faculty members to obtain appointments on the Oak Ridge Research Participation Program for varying periods, usually not less than three months, in order to pursue advanced studies in their fields of specialization. Thus, both faculty and students may keep abreast of the most modern and up-to-date developments in atomic and nuclear research that is in progress at the Oak Ridge Laboratories.

The students will go to Oak Ridge on Oak Ridge Graduate Fellowships. The stipend will be determined by the number of dependents of the student and by the level of work which he is prepared to do. Faculty members may work in Oak Ridge on stipends commensurate with their current college salary and rank.

Information on the opportunities for research in the Oak Ridge Laboratories is available in the office of the Dean of the Graduate School.

Grant-in-Aid Research Program

The Grant-in-Aid Program has for its purpose the stimulation of campus-wide interest and activity in basic research among the faculty and, indirectly, the upgrading and vitalizing of teaching on advanced levels of instruction. Funds made available by the University Administration are granted to faculty members in support of worthy research projects which as a rule have already been initiated and require only modest sums for their completion. Applications for grants are evaluated carefully by the Research Grant-in-Aid Committee. The Committee makes recommendations to the Dean of the Graduate School who presents the applications to the President for final approval.

Nuclear Science Center

WARREN ANDREWS, *Director*

A Nuclear Science Center will be completed in 1967. This facility will provide research and teaching space for use by all departments for work in

all phases of the pure and applied aspects of the nuclear science field. It is expected that work will be done in the areas of agriculture, chemistry, engineering, home economics, pharmacy, physics and veterinary medicine.

Auburn Computer Center

LELAND WILLIAMS, *Director*

The Auburn Computer Center, established in 1959, is administered by the Graduate School. The Center is equipped with three computers, IBM Models 1401, 1620, and 7040. The facilities of the Center are available without charge to students and faculty for use in instructional and research programs. Others interested in the use of the facilities should contact the Director to obtain information on policies regarding charges for computer time and to arrange for use of the computer facilities.

Water Resources Research Institute

JAMES C. WARMAN, *Director*

Auburn University has long been engaged in graduate training and research programs in a number of water sciences. These are now being coordinated by the Water Resources Research Institute, a State agency established at Auburn University in 1963 under authorization of the Alabama Legislature. The Institute may receive research proposals from any college or university in the State. Interdepartmental and multidisciplinary programs will receive special emphasis.

Major areas of Institute activity include: aquatic weed control, economics of water resource use, fisheries biology and management, hydrology, hydraulics, management of run-off water, movement of water through the soil, and pollution control.

Description of Courses by Departments

This section contains all courses offered in the University, listed by departments, arranged in alphabetical order.

Courses bearing the numbers from 000 to 099 inclusive are remedial courses carrying no degree credit; those bearing the numbers 100 to 199, inclusive, are normally offered for freshmen; those from 200 to 299, sophomores; 300 to 399, juniors; 400 to 499, seniors; 500 to 599, fifth year students; 600 to 699, graduate students; and 700, doctoral candidates.

Description of courses in each department includes: (a) course number; (b) descriptive title; (c) in parentheses, credit in quarter hours i.e. one quarter (5), two quarters (5-5), etc.; (d) lecture and laboratory hours for courses with laboratory (where no statement is made the course consists of lecture periods equal in number to course credit); (e) the quarter in which the course is offered; (f) prerequisite (Pr.); (g) description of subject matter and method.

Preceding the description of courses for each department is a list of the departmental faculty.

INDEX BY FIELDS OF INSTRUCTION

(Departmental symbols in parentheses)

Administration, Supervision, and Guidance (AED).....	169	History (HY).....	231
Aerospace Engineering (AE).....	172	Home Economics (HE).....	234
Aerospace Studies (AF).....	174	Horticulture (HF).....	239
Agricultural Economics and Rural Sociology (AS).....	175	Interdepartmental Education (IED).....	242
Agricultural Engineering (AN).....	177	Industrial Engineering (IE).....	244
Agronomy and Soils (AY).....	179	Industrial Laboratories (IL).....	246
Animal Science (AH).....	182	Journalism (JM).....	247
Architecture (AR).....	184	Laboratory Technology (LT).....	248
Art (AT).....	187	Mathematics (MI).....	248
Aviation Management (AA).....	189	Mechanical Engineering (ME).....	251
Botany and Plant Pathology (BY).....	190	Military Science (MS).....	256
Building Technology (BT).....	193	Music (MU).....	257
Chemical Engineering (CN).....	194	Naval Science (NS).....	263
Chemistry (CH).....	197	Pharmacy (PY).....	263
Civil Engineering (CE).....	200	Philosophy (PA).....	267
Dairy Science (DH).....	203	Physical Education (Men and Women) (See Health, Physical Education & Recreation)	
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Economics (EC).....	205	Political Science (PO).....	271
Electrical Engineering (EE).....	210	Poultry Science (PH).....	272
Elementary Education (EED).....	213	Pre-Engineering (PN).....	274
Engineering Graphics (EG).....	215	Psychology (PG).....	274
English (EH).....	216	Secondary Education (SED).....	276
Foreign Languages (FL).....	219	Secretarial Administration (SA).....	278
Forestry (FY).....	221	Sociology (SY).....	279
Foundations of Education (FED).....	224	Speech (SP).....	281
General Electives (GE).....	226	Textile Engineering (TE).....	284
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Health, Physical Education and Recreation (PE).....	226	Veterinary Medicine (VM).....	289
		Zoology-Entomology (ZY).....	295

General Elective Courses (GE)

Courses listed below are of non-technical and cultural nature offered as lecture and reading courses with three credits per quarter, for use primarily as electives in the junior, senior, and fifth years. With the approval of the dean they may be used as general electives elsewhere in the curriculum.

AF Advanced Aerospace Studies (3). Lec. 3, Lab. 2.

For students selected.

AR 360. Appreciation of Architecture (3). Pr., sophomore standing. (Not open to AR and ID students.)

Survey of architectural development with particular attention to American and contemporary examples. Illustrated lectures, readings, essays.

AR 370. Spaces of Living (3). Pr., junior standing. (Not open to AR and ID students.)

Survey of contemporary concepts of design, spatial organization, materials, furnishings, and gardens in relation to all major types of residential architecture. Illustrated lectures, readings, reports.

BY 305. Plants and Man (3). Lec. 3. Summer.

Brief introduction to the botanical characteristics of most categories of plants including their kinship, origin, past and present distribution, and various ways utilized, as timbers, fruits and other foods, fibers, forage, ornamentals, drugs, etc. Local field trips will be made. (Restricted to students who have no more than 5 hours credit in Botany.)

CH 342. Geology (3). Pr., CH 104 or sophomore standing.

General geology.

DR 313. Drama Appreciation I (3). (Not open to Drama majors.)

Survey of the theatre and stagecraft from early times to the present day, emphasizing the social and artistic position of the stage in each civilization. Illustrated lectures, readings.

DR 314. Drama Appreciation II (3). (Not open to Drama majors.)

Survey of contemporary plays and productions, aimed to make theatre-going intelligent fun.

EC 206. Socio-Economic Foundations of Contemporary America (3).

Appraisal and survey of the social and economic developments which lead to and help toward an understanding of present day American society. Economic and social institutional development is studied against the background of the Industrial Revolution.

EC 340. Personal Finance (3). Pr., junior standing.

Informative study of plans for managing personal financial problems involving insurance, housing, household budgeting, investments, personal and bank loans, credit and time buying, etc.

EED 310. Reading Improvement (3). Lec. 2, Lab. 2. Available as an elective course to all University students.

EH 208. Literature of the Western World (3). Pr., EH 108 or EH 253. All quarters.

Study of about eight significant literary works of the Western World which provide representative views of man in the Medieval, Renaissance-Reformation, and Eighteenth Century periods.

EH 301. Creative Writing (3). Fall, Spring.

Devoted principally to the writing and criticizing of short stories. The student may be permitted to write poetry, drama, or any other form of imaginative literature.

EH 302. Creative Writing (3). Fall, Spring.

Continuation of English 301.

EH 310. Word Study (3). Fall, Spring.

History of English words and their meanings with the object of improving the student's command of his language and illustrating for him some of the patterns in the development of human thought.

EH 320. An Introduction to Drama (3). Winter.

Representative tragedies and comedies of Europe from antiquity to the present. Such figures as Sophocles, Moliere, Shakespeare, and Ibsen will be considered.

EH 350. Shakespeare's Greatest Plays (3). (Not open to students with credit in EH 451-52.)

Some of Shakespeare's masterpieces.

EH 360. Continental Fiction (3). Winter.

Representative European short stories and novels.

EH 365. Southern Literature (3). Spring.

EH 381. The Literature of the Age of Reason (3). Fall.

Rationalism, its assumptions and its effects, political, social, and scientific as seen in the works of such major eighteenth-century writers as Locke, Johnson, Burke, Voltaire, and Rousseau.

- EH 385. Literature in the Scientific Age (3). Winter.**
- GY 301. Geo-Political Basis of World Powers (3). Pr., junior standing.**
Deals with the interaction between the natural-physical environment and the international activities of world powers. Emphasis is placed upon the changing geographic and economic patterns in world affairs.
- GY 303. Geography of the Soviet Union (3). Pr., junior standing.**
Physical and human geography of the U.S.S.R. and its role in international affairs.
- HE 302. Table Service (3). Each quarter.**
The accessories used for table service in their relation to each other and to the complete service of meals. Principles of flower arrangement are studied and forms of the different food services in the home.
- HE 304. Home and Family Life (3). Lec. 3. Each quarter.**
The relationship of family members, economic and social problems at all age levels, and development tasks of individuals.
- HE 306. Personal Appearance and Social Interaction (3). All quarters.**
Good grooming, its contributing factors and their influence on social and business relations.
- HE 345. Creative Crafts (1-2-3). Lab. 9.**
Design and execution of creative crafts; viz., metal work, ceramics, weaving, fabric decoration.
- HE 353. Community and Family Health (3). Lec. 2, Lab. 2.**
Health problems related to the community and family including a survey of available health facilities with field trips.
- HE 355. Consumer Textiles (3). Fall, Winter, Spring.**
Textile fabrics, finishes and trade practice with special emphasis on consumer problems.
- HE 365. Creative Metalwork and Mosaics (1-3). Lab. 9. General elective. Fall quarter.**
A study of design and experience in executing work in the areas of creative metalwork, jewelry, enameling, and/or mosaics.
- HE 372. Nutrition and Health (3).**
Study and application of the fundamentals of human nutrition. Food requirements of different age levels and selection of food at different cost levels are considered. Open to all students except Nutrition or Nursing Science majors.
- HE 375. Creative Ceramics (1-3). Lab. 9. General elective. Winter quarter.**
A study of and experience in working with various clays, building processes, ceramic glazes, and ceramic design.
- HE 385. Creative Weaving, and Fabric Decoration (1-3). Lab. 9. General elective. Spring quarter.**
Creative experiences in the design of and various ways to decorate fabric, such as creative stitchery, block print, stencil, batik, dyeing; or a study of weaving design and experiences in selecting yarns, setting up a loom, and weaving one's own fabric.
- HF 225. Flower Arranging (3). Lec. 2, Lab. 2. Fall.**
Principles and practices of flower arranging in the home.
- HY 204. History of the Modern World (3). (Credit in HY 208, 312, and 313 excludes credit for this course.)**
Survey of the major periods of modern history and the factors contributing to the Modern World Civilization. (Primarily for students in Engineering curricula.)
- HY 314. United States Colonial History (3). Pr., junior standing.**
Survey of the political, economic, and social history of the colonies from their founding to the end of the French and Indian War, 1763.
- HY 315. International Organization (3). Pr., junior standing.**
Traces the evolution of international organization from the beginning through the United Nations.
- HY 322. The United States in World Affairs (3). Pr., junior standing.**
Brief survey of the influence which the United States has exerted in international affairs.
- HY 371. History of the West (3). Pr., junior standing.**
Brief history of the development of the West and of its influence on American History.
- MS Advanced Military Science (3). Lec. 3, Lab. 2.**
For students selected.
- MU 371. Introduction to Music (3). (May not be taken for credit by music majors or minors.)**
Introductory course in the understanding of music including an explanation of basic terms, notations, rhythms, tonal systems, vocal and piano score reading.

- MU 373. Appreciation of Music (3).** (May not be taken for credit by music majors or minors.)
Outstanding composers and compositions. No previous music training required. An orientation in the art of listening.
- MU 374. Masterpieces of Music (3).** (May not be taken for credit by music majors or minors.)
Representative musical works of each great period of musical history. No previous music training required.
- MU 401. Fundamentals of Music (3).** (No credit allowed to music majors or minors.)
Representative musical works of each great period of musical history. No previous music training required.
- MU 477-8-9. Music Arranging (3-3-3).** By permission.
Project course in arranging various combinations from quartet to symphonic band, and arranging for solo and choral groups.
- NS Advanced Naval Science (3).** Lec. 4, Drill 2.
For students selected.
- PA 301. Introduction to Philosophy (3).**
Introductory survey of the great philosophical problems underlying western civilization.
- PA 302. Introduction to Ethics (3).**
Introduction to the general principles of morality as applied to human conduct.
- PA 308. Introduction to Logic (3).** (Not open to students with credit in PA 307.)
Principles of logical thinking with emphasis upon functional application of these principles.
- PA 310. Eastern Religious Thought (3).**
Readings from primary and secondary sources related to Hinduism, Jainism, Buddhism, Taoism, Confucianism, Shintoism, and Sikhism.
- PA 315. Western Religious Thought (3).**
Readings from primary and secondary sources related to Ancient Egyptian, Mesopotamian, and Greek religions, Judaism, Zoroastrianism, Christianity, and Islam.
- PG 311. The Behavior of Man (3).** (Not available to students with credit in PG 211.
May be used as a prerequisite for PG 325, PG 330, PG 345.)
The science of behavior and a survey of the field of psychology. (Credit not allowed for both PG 211 and PG 311.)
- PS 217. Astronomy (3).**
Descriptive astronomy, accompanied by occasional observations of the heavenly bodies with a three-inch refracting telescope.
- RE 301. Religion and Modern Thought (3).**
The relation between the philosophical foundations of Christianity and modern thought in other fields.
- RE 305. Comparative Religions (3).**
Principle religions of the world, including readings in the history and literature of the peoples whose religions are discussed.
- RE 306. Studies in the Gospels (3).**
Characteristics of the Gospels and the harmony among them.
- RE 307. History of the Christian Church (3).**
History of the Christian Church from the close of the New Testament period to the present time with chief emphasis upon the development in Western Europe and in the United States.
- RE 308. The Epistles of Paul (3).**
Epistles of Paul in the New Testament; their dates, backgrounds, and arguments; the major emphasis of Paul's thought; particular studies of portions of Thessalonians, I Corinthians, and Romans to demonstrate typical Pauline themes.
- RE 309. The Prophets of Israel (3).**
History of the Hebrew religion as the background of Christianity. Selected figures of the Old Testament are studied, each seen in his own day seeking to interpret his times in the light of the eternal messages he was called to deliver.
- SA 113. Personal Typewriting (3).** Lab. 6. (Not open to those with credit in SA 111 or those who have had one high school unit in typing.)
For students who wish to learn typewriting for personal use. Emphasis on touch control of keyboard, centering, appropriate styles for letters, and the preparation of reports. More time spent on the application of fundamentals than on speed.
- SP 270. Group Leadership (3).**
Nature and functions of group leadership; the role of democratic leadership in organizing and conducting a group meeting to reach the aims of that group. Students gain leadership experience in class activities designed to help them learn and perfect democratic leadership techniques.

- SP 210. Public Speaking (3).** (Credit in this course excludes credit of SP 211.)
Designed to aid the student in preparing and delivering effective public speeches extemporaneously. Emphasis is on narrative, expository, argumentative, and motivational speeches.
- SP 371. Parliamentary Procedure (3).**
Designed to aid the individual who may lead or participate in discussions or organizations where orderly procedure is needed. Theory and practice both employed.
- SP 310. Great American Speeches (3).** All quarters.
Critical study and comparison of representative outstanding American speeches; the issues with which they were identified; their relation to the social scene.
- SY 205. Preparation for Marriage (3).**
Basic factors in dating, courtship, mating selection, and engagement in preparation for marriage and family living.
- SY 311. Technology and Social Change (3).** Pr., junior standing.
Relationship between technological development and changes in modern society. Special emphasis is placed upon the human relations aspect of modern science. Designed primarily to meet social science needs of students in the fields of engineering, agriculture, education, and the physical sciences.
- SY 312. Marriage Adjustments (3).** Pr., junior standing.
Survey of emotional, social and biological factors in the family setting with emphasis upon adjustments of marriage and parenthood.
- ZY 204. Insects (3).**
Introduction to the study of life processes, occurrence, and importance of insects. (Credit not allowed to students who have credit in a more advanced course in entomology.)
- ZY 205. Wildlife Conservation (3).** Fall.
Conservation and natural history of important wildlife animals, especially Alabama fish, amphibians, reptiles, birds, and mammals. Some field trips will be required as substitute for part of the scheduled lectures.
- ZY 206. Conservation in the United States (3).** Winter, Spring, Summer.
Basic facts essential to an understanding of current problems pertaining to the conservation of our rapidly depleting natural resources such as soil, water, minerals, forest, and wildlife. Especially planned for elementary and high school teachers.
- ZY 207. Birds (3).** Fall, Summer.
Birds in relation to agriculture and game management, recognition of various species as to flight, color markings, songs, and feeding habits.
- ZY 210. Fish Culture (3).** Winter.
Introduction to the construction and management of ponds, and the principles underlying fish production; also fishing methods, bait production, and the identification of the more common sport fish.

Administration, Supervision, and Guidance (AED)

Head Professor Pharis

Professors Lovell, Pierce, Price, and Saunders

Associate Professors Harlan, and Tincher

*Assistant Professors Barberousse, Donnan, Oppenheimer, *Teague, and Walden*

Prerequisites and corequisites in the Department of Administration, Supervision, and Guidance are: experience in teaching; employment or definite professional objectives leading to employment in administration, supervision, or guidance; AED 681, 670, or 621, or equivalent, as prerequisite or corequisite to advanced study in any of the specialized areas; and FED 600, PG 617, FED 647, and FED 661, or equivalent, as prerequisite or corequisite to specialized study in administration, supervision, or guidance.

ADMINISTRATION AND SUPERVISION

Primarily for Graduate Students

670. Supervision of the Instructional Program (5).

Assists superintendents, supervisors, principals, teachers, and other educational leaders in understanding the meaning, purpose and function of supervision, the basic factors in the improvement of teaching, and in understanding and evaluating the various concepts of educational leadership as they apply to the improvement of teaching effectiveness.

* On leave 1966-67.

681. Organization and Administration of Public Education (5).

For superintendents, principals, teachers and other educational leaders. Topics include purposes of organization and administration; organization and administration on federal, state, and local levels; financial support and accounting; operation of plant; school-community interaction, and personnel administration.

683. The Leadership Role in Educational Administration (5).

Current theories, concepts and principles of leadership and their application to education. Further emphasis placed on the responsibility of the educational administrator for leadership in the school and community, in the continuous improvement of staff competence and principles, and in evaluation of effective leadership.

685. Administrative Organization and Behavior (5).

Current theories and concepts of formal organization and of collective behavior. Includes a social-psychological approach to organizations, and treats current trends in organizing for instruction.

686. Administration and Policy Formation (5).

Analysis of basic social forces, antecedent movements, and political action leading to formal enactment of educational policy at national, state, and local levels. Consideration is given to the roles and functions of governing and regulating boards and agencies.

688. School Finance and Business Administration (5).

Theories and principles of school support including responsibility of federal, state and local agencies; state foundation programs, preparation, and administration of salary schedules, budgeting and business administration including purchasing and accounting insurance and bonding.

689. Planning and Maintenance of School Buildings (5).

The relationships of plant and plant maintenance to the quality of education; an analysis of population growth and distribution as related to building needs, selection of sites, finance programs, problems of building utilization, evaluation, equipment, maintenance and custodial services.

690. Administering Auxiliary Services in the Public Schools (5).

The purposes and role of auxiliary school services. Special attention given to the administration of transportation, school lunch, safety, health and medical problems.

692. Constitutional, Statutory and Judicial Foundations of Education (5).

The constitutional and statutory provisions for education and an analysis of judicial decisions affecting education. Among topics are authority and responsibility of the teacher; rights, privileges and responsibilities of students; use of school property, taxation; curriculum, contracts and retirement provisions; contractual capacity and liability, and transportation.

693. Personnel Administration (5).

Assists educational leaders in acquiring knowledge and developing understandings with respect to the relationships between effective personnel administration and the quality of education. Emphasis placed on research results and experimentation in areas such as morale, welfare, work loads, pupil accounting, and bases for salary determination as they relate to staff and pupil personnel.

GUIDANCE**For Advanced Undergraduates and Graduates****421. Guidance in the Public Schools (5). Pr., senior standing.**

Emphasizes understanding guidance relationships in the classroom. Not open to graduate students majoring in guidance and counseling.

Primarily for Graduate Students**621. Principles of Guidance and Student Personnel Work (5).**

Enables students to develop a conceptual framework for viewing the inter-relationship of guidance and counseling in terms of (1) personal and social factors and (2) their place in a comprehensive program of student personnel work. Prerequisite to all further study in guidance and student personnel work.

622. Introduction to Rehabilitation Counseling (5). Pr., AED 628 and Permission of Instructor.

Counseling process in the rehabilitation setting. Focusing also on the historical development, duties, legal background, ethics and the setting.

624. Medical and Adjustment Aspects of Disability (5). Pr., Permission of Instructor.

Orientation to medical and adjustment aspects of the disabled individual. Understanding and using medical and paramedical personnel effectively in the rehabilitation process.

625. Vocational Appraisal (5). Pr., PG 415 or equivalent and permission of instructor.
Appraisal of interest, aptitude, and personality tests used in the process of counseling with individuals confronted with vocational decisions. Laboratory practice in test administration, scoring, interpretation, and reporting.
627. Problems in Guidance (5). Pr., permission of the instructor.
Develops competency in the application of counseling theory and research findings, with special emphasis on educational problems.
628. Counseling Theory and Practice I (5). Pr. or coreq., AED 621, AED 638; pr., PG 415, 433.
Presents alternative theoretical strategies of counseling; integrates the concepts of individual analysis and the collection and dissemination of educational and occupational information with those of counseling; prepares the student for further study of the theoretical and practical aspects of counseling.
629. Counseling Theory and Practice II (5). Pr., AED 628.
A continuation of AED 628.
632. Organization and Administration of Guidance Programs (5). Pr. or coreq., AED 621.
For administrative and guidance personnel. Primary purpose is to identify the major functions of education, perceive guidance in this perspective and then to study the organization, administration, and evaluation of guidance programs in their educational setting.
633. Analysis of the Individual (5). Pr. or coreq., AED 621; pr., PG 415.
Assists teachers and other guidance personnel in acquiring knowledge, understanding and skill necessary to obtain records and appraise information about the pupil as an individual and as a member of a group.
638. Information Services in Guidance and Counseling (5). Pr., or coreq., AED 621; pr., PG 415, 433.
Helps school counselors develop an understanding of the individual appraisal service and its relationship to counseling; the educational and occupational information service and its relationship to counseling.

HIGHER EDUCATION

618. Organization and Administration of Higher Education (5). Pr., IED 663 or IED 665, or permission of the instructor.
For educational leaders in higher education. Provides a study of the organization, administration, and evaluation of institutions in higher education in terms of the academic program, student personnel services, business affairs, and related programs. Includes the relationship between higher education and the state and federal government.
697. Student Personnel Work in Higher Education (5). Pr., AED 621.
Theories, principles, practices, organization, administration, and evaluation of student personnel services in higher education.

GENERAL

646. Studies in Education (1-3). Pr., one quarter of graduate study and departmental approval.
A special problem in administration, supervision, guidance, or higher education using research techniques. (Credit in ED 651 prior to 1960 excludes credit for this course.)
650. Seminar in Area of Specialization (5). Pr., permission of the instructor.
Provides an opportunity for advanced graduate students and professors to pursue cooperatively selected concepts and theoretical formulations.
651. Internship in Area of Specialization (5). Pr., permission of the instructor; may be repeated for a total of not more than 15 credits.
Provides advanced graduate students with full-time, supervised, on-the-job experiences in a school, college, or other appropriate setting. These experiences are accompanied by regularly scheduled, on-campus discussion periods, designed to provide positive evaluation and analysis of the field experience.
- 659-660. Practicum in Area of Specialization (5-5). Pr., permission of major professor.
Provides advanced graduate students with supervised experiences with emphasis on the application of concepts, principles, and skills acquired in previous course work.
699. Research and Thesis (Credit to be arranged). May be taken more than one quarter.
798. Research and Thesis (5).
799. Research and Dissertation (Credit to be arranged).

Aerospace Engineering (AE)*Head Professor Pitts**Professors Djordjevic, Martin*, and Sforzini****Associate Professors Cutchins, Harwell, and Sherling**Assistant Professors Barlow, Burkhalter, Nichols, and White**Instructor Pallas*

205. **Aerospace Fundamentals (3).**
Introduction to aerospace concepts and terminology. Consideration is given to the schemes and designs of aerospace systems.
300. **Aerospace Analysis I (4).** Pr., MH 361.
Introduction and application of special methods and notations used in Aerospace Engineering.
301. **Basic Aerodynamics (5).** Lec. 4, Lab. 3. Pr. AE 300, ME 301.
The basic equations of fluid dynamics with application to the prediction of pressure distributions, velocity measuring techniques, and aerodynamic testing facilities. Elementary boundary layer theory and fundamentals of dimensional analysis.
306. **Basic Astronautics (3).** Pr., AE 205. Corequisite, MH 361.
Introduction to planetary motion with emphasis on mechanics of the solar system. Designed to acquaint the student with the overall environment and technology of space travel.
308. **Aircraft Structures I (5).** Pr., AE 205 and ME 208.
Load analysis of aerospace structures involving load factors, space frames, beams and redundant frames.
310. **Aerospace Analysis II (4).** Pr., AE 300, ME 322.
Introduction to linear and non-linear systems, linearization procedures, and linear systems analysis techniques. Transfer functions and stability criteria for some aerospace systems and components. Other special techniques as required by advanced courses.
401. **Aeronautical Problems I (1).** Lab. 3. Pr., senior standing.
Investigation of current aeronautical problems; preparation and presentation of technical papers and reports.
402. **Aeronautical Problems II (1).** Lab. 3. Pr., AE 401.
Continuation of AE 401.
403. **Stability and Control (5).** Lec. 4, Lab. 3. Pr., AE 310 and AE 404.
Introduction to the stability and control of flight vehicles including laboratory techniques in the determination of stability parameters.
404. **High Speed Aerodynamics (5).** Lec. 4, Lab. 3. Pr., junior standing and AE 413.
Fundamental principles of compressible flow, including subsonic, transonic, supersonic and hypersonic aerodynamics, high speed wind tunnels and laboratory techniques.
405. **Boundary Layer Theory and Aerodynamic Heating (3).** Pr., junior standing and AE 404.
Theoretical background essential to a fundamental understanding of laminar and turbulent boundary layers and their relation to skin friction and heat transfer. Basic concepts of the continuum, slip and free-molecule flow regimes and their application to typical aerodynamic heating problems.
409. **Aircraft Structures II (6).** Lec. 5, Lab. 3. Pr., AE 308.
Analysis for deflections, redundancies, structural stability of flat and curved plates; sandwich construction; shell analysis. Experimental stress analysis techniques and their application to aerospace structures. Electrical, mechanical and optical strain measurements for static and dynamic loading. Fatigue and elevated temperature effects.
411. **Airplane Design (3).** Lec. 2, Lab. 3. Pr., permission of instructor.
Aircraft and missile systems design. Including economic and performance tradeoffs for various types of aerospace systems.
413. **Theoretical Aerodynamics (5).** Lec. 4, Lab. 3. Pr., AE 301.
Fundamental practices of aerodynamics, potential flow theory, dynamics of viscous fluids. Correlation of potential flows theory with experimental results.
414. **Equilibrium Gas Dynamics (3).** Pr., permission of instructor and junior standing.
Basic concepts of The Equilibrium Kinetic Theory and the equilibrium real gas properties. Aero-thermodynamic fundamentals of external flows for various atmospheric flight conditions in terms of flight speeds, altitudes and vehicle geometry.

* On study leave to September 1, 1967.

** Visiting Professor.

415. Rocket and Jet Propulsion (5). Pr., junior standing and ME 301 or ME 310, and AE 301 or ME 325.
Thermodynamic cycle of rocket and jet engines, air compressors, and gas turbines. Flow of gasses through ducts and nozzles.
416. Rocket Propulsion I (3). Pr., AE 415, junior standing.
Detailed analysis of the thermodynamics, aerodynamics, and design of liquid propulsion rockets.
417. Rocket Propulsion II (3). Pr., AE 415, junior standing.
Design and performance analysis of solid propellant rocket motors with emphasis on internal ballistics.
420. Flight Vehicle Stress Analysis I (3). Pr., junior standing and AE 409.
Computer techniques applied to the analysis of flight vehicle structures.
421. Flight Vehicle Stress Analysis II (3). Pr., junior standing and AE 409.
Stress analysis of pressure chambers and vessels encountered in aerospace applications.
424. Nonequilibrium Gas Dynamics (3). Pr., permission of instructor and junior standing.
Nonequilibrium Kinetic Theory of real atmospheric gases. Applications of the thermal and chemical nonequilibrium conditions to the external flows for various flight conditions.
428. Space Propulsion Systems (5). Pr., junior standing and AE 415.
Introduction to reaction engines for use in outer space vehicles. Environment of outer space, power requirements for space missions, introduction to relativistic mechanics, nuclear power systems, particle generators, magnetohydrodynamics, plasma accelerators and photonic engines.
429. Aircraft Vibration and Flutter (5). Pr., AE 301 and ME 322.
Lagrangian equation of motion, linear and multiple degree-of-freedom systems, coupled and un-coupled beam vibration, flutter theory.
430. Rotary Wing Aircraft (5). Pr., AE 301.
Rotary wing flight characteristics and basic aerodynamics including stability, control vibration and performance.
431. Astronautics (5). Pr., AE 206, AE 300 and AE 301.
Trajectory analysis, including application of digital and analog computers, ballistic missile range parameters and deviation coefficients; satellite orbits and rocket interplanetary trajectories.
440. Flight Vehicle Performance (3). Pr., AE 413, AE 310.
Equations of motion for flight vehicles, special cases and solutions including effects of propulsion system and aerodynamic variations.
441. Dynamic Stability & Control (3). Pr., AE 403 and junior standing.
Longitudinal and lateral dynamics of aircraft. Response to actuation of controls. Attitude dynamics of spacecraft. Emphasis on design considerations of various vehicles.
442. Automatic Stability and Control (3). Pr., AE 441 and junior standing.
Introduction to principles and techniques of automatic control of aircraft and missiles. Effects on design variables.

GRADUATE COURSES

601. Advanced Supersonic Aerodynamics (5). Pr., AE 404.
A continuation of AE 404, High Speed Aerodynamics. Consists of a rigorous development of linearized and nonlinearized compressible fluid flow and application. Lifting surfaces, lifting bodies, duct flow and boundary layer effects.
602. Advanced Elements of High Speed Aerodynamics (5). Pr., AE 601 or equivalent.
A continuation of AE 601 to include three-dimensional wing theory; slender body theory and similarity laws for subsonic, supersonic and hypersonic flow conditions.
603. High-Speed Viscous Aerodynamics (5). Pr., AE 602 or equivalent.
A continuation of AE 602 to include effects of conductivity and viscosity on aerodynamic properties.
605. Aeroelasticity (5). Pr., AE 429.
General formulation of aerolastic problems, buffeting, flutter and loss of control, dynamic stresses.
611. Thrust Generation (5). Pr., AE 301 or equivalent.
Aerothermodynamics of compressible flow, chemical propellant characteristics, heat transfer in fluid flow, nuclear propulsion.
615. Hypersonic Flow Theory (5). Pr., AE 404, Corequisite, MH 461.
Hypersonic continuum theory, governing equations of motion for two and three dimensional flows, hypersonic small disturbance theory, viscous effects. Real gas effects in gasdynamics and rarefied gas flows, basic heat transfer concepts.

619. **Dynamics of Flight (5).** Pr., AE 403, Corequisite, MH 661.
Small-disturbance theory and the linearized solutions of the general equations of unsteady motions, aerodynamic derivatives analysis, aerodynamic transfer functions, dynamic stability of uncontrolled longitudinal and lateral motions, solutions of the dynamic stability problems by electronic computing devices, inverse problem, automatic stability and control.
631. **Advanced Astronautics (5).** Pr., AE 431 or permission of instructor.
Advanced astrodynamics and trajectory theory; n-body problems; perturbation forces and effects; orbital transfer and trajectory optimization; theory of space guidance. A continuation of AE 431 at the graduate level.
635. **Ion and Plasma Propulsion (5).** Pr., permission of instructor.
Basic physical and gas dynamic processes underlying methods for electrical acceleration of ionized gas flows appropriate to propulsion, electrostatic propulsion, electromagnetic propulsion.
640. **Magneto-Gas Dynamics (5).** Pr., permission of instructor.
Review of electrodynamics, Maxwell stresses, field and momentum-energy tensors. Thermodynamics of fluids in electromagnetic fields. Equations of motion of a conducting gas. Discussion of typical flow problems. Consideration of microscopic aspects of plasma flows.
645. **Shock Tube Theory and Techniques (5).** Pr., permission of instructor.
Shock wave theory in real and perfect gases, expansion wave theory, reflected shock wave theory. Basic shock tube equations; effects of area change, driver types and characteristics. Non-ideal behavior in shock tubes, diaphragm opening effects, boundary layer effects, shock wave attenuation. Testing time derivation. Shock tube techniques and measurements.
690. **Seminar.** Credit to be arranged. May be taken more than one quarter.
Provides weekly lectures on current developments in aerospace sciences by staff members, graduate students, and visiting scientists and engineers.
691. **Directed Reading in Aerospace Engineering.** (Credit to be arranged, not exceeding 5 hours.) May be taken more than one quarter.
699. **Research and Thesis.** Credit to be arranged.

Aerospace Studies (AF)

First Year (Freshman)

101. **Defense of the United States (1).** Lec. 1, Lab. 2.
An introductory course exploring the causes of present world conflict as they affect the security of the United States.
102. **The United States Position in World Affairs (1).** Lec. 1, Lab. 2.
An analysis of the U.S. position in world affairs and organization for national security.
103. **Missions and Functions of the USAF (1).** Lec. 1, Lab. 2.
A survey of the United States Air Force and the professional opportunities available to the Air Force officer.
201. **World Military Systems (1).** Lec. 1, Lab. 2.
A survey of the mission, organization, and functions of U.S. Army and Navy forces.
202. **World Military Systems (1).** Lec. 1, Lab. 2.
A survey of communist military forces and communist regional security organization.
203. **World Military Systems (1).** Lec. 1, Lab. 2.
A survey of U.S. Military commitments throughout the world and the combined strength of U.S. and allied military forces.
301. **Growth and Development of Aerospace Power (3).** Lec. 3, Lab. 2.
The nature of war and the development of air power in the United States.
302. **Growth and Development of Aerospace Power (3).** Lec. 3, Lab. 2.
The nature of war and the development of air power in the United States.
303. **Growth and Development of Aerospace Power (3).** Lec. 3, Lab. 2.
The nature of war and the development of air power in the United States.
401. **The Military as a Profession (3).** Lec. 3, Lab. 2.
The understanding of the meaning of professionalism and the professional concepts of military duty.
402. **Leadership and Management Skills (3).** Lec. 3, Lab. 2.
The understanding of management principles applicable to the duties of the junior officer.
403. **The Aerospace Team Structure (3).** Lec. 3, Lab. 2.
The responsibility, authority, and functions of the Command-Staff team, the junior officer, and performance standards.

Agricultural Economics and Rural Sociology (AS)

Professors Yeager, Blackstone, Danner, and White
Associate Professors Bell, Morrill, and Wilson
Assistant Professors Dunkelberger, Glover, and Miller

102. **Agricultural Economics Orientation (0).** Lec. 1. (Required of all students in Agricultural Business and Economics.)
202. **Agricultural Economics (5).** All quarters. Pr., sophomore standing.
 An orientation in agricultural economics dealing especially with economic principles involved in changes and trends in farm-related production, marketing, prices, consumption, taxation, credit, finance, public policies, tenure, etc., and with utilization of land, labor, and capital.
301. **Agricultural Marketing (5).** Pr., AS 202 or EC 201.
 Principles and problems involved in marketing farm products. Analysis of marketing functions, services, and costs; reducing costs and improving marketing efficiency. Marketing methods and distribution channels of major farm commodities. Market institutions and operation.
302. **Farm Records (3).** Pr., AS 202 or EC 201.
 Farm records and accounts and their uses. Kinds and systems of records and accounts adapted to use on Alabama farms.
303. **Agricultural Cooperatives (3).** Pr., AS 202.
 Principles and problems of organizing and operating farmers' cooperative buying and selling associations. History, importance, and types of cooperative, non-profit, and mutual associations.
304. **Agricultural Finance (3).** Pr., AS 202.
 Economic problems and policies in financing agriculture. Capital requirements and credit needs; sources, availability, and costs of capital and credit; principles of lending, borrowing, and investment; voluntary and involuntary capital rationing; institutional developments for improving allocation of capital and credit.
305. **Farm Appraisal (3).** Pr., AS 202.
 The theory of land values; techniques on farm land and building appraisals for different purposes; relationships of land use, soils, crops, forestry management, buildings, land titles, farm prices, taxes, and interest rates to land values; actual appraisals of selected farms; evaluation of appraisal methods and forms currently in use.
361. **Rural Sociology (5).** Pr., sophomore standing.
 Emphasizes the basic sociological concepts and principles as applied to life in the rural community. Special attention given to the culture, social organization, and social problems of rural people in the United States, and in the South in particular.
401. **Farm Management (5).** Pr., AS 202 or EC 200 and junior standing.
 Principles and problems involved in acquiring, organizing, and operating a successful farm business. Formation and integration of family and farm business goals. Development of managerial skill for farming, farm and home development work, and professional farm management work.
403. **Agricultural Prices (3).** Pr., AS 202 or EC 200 and junior standing.
 Principles and factors involved in the pricing process with special reference to agricultural products and markets. Functions of prices and principles of supply and demand in price determination. Sources of farm price data and methods of price analysis. Policy implications of economic principles as applied to farm price policy programs.
405. **Agricultural Policy (3).** Pr., AS 202 or EC 200 and junior standing.
 Concepts, objectives and operation of public policies affecting agriculture. Development of agricultural policies in the United States. Alternative methods of dealing with farm problems at national, state, and local levels, and analyses of interrelationships with other public policy programs.
410. **Agricultural Business Management (3).** Pr., AS 202 or EC 200 and junior standing.
 Principles and problems involved in acquiring, organizing and operating successful agricultural businesses; capital requirements for selected agricultural businesses, factors affecting location and growth, and measures of technical and economic efficiency in organization and operation; practices involved in buying, pricing, and merchandising; management problems and policies in financing, personnel, and public relations.
411. **Economic Development of Rural Resources (3).** Pr., AS 202 and junior standing.
 Theoretical and empirical study of economic growth and development; problems of undeveloped and underdeveloped areas; role of agriculture in a developing economy; examination of the policies and programs for effective economic growth and development.

412. **Economic Aspects of Water Resources Management (5).** Pr., junior standing. Theoretical and empirical study of the supply, demand, and use of water resources including its economic, legal, and political dimensions. Particular emphasis on the economics of management of water resource use and conservation in terms of present and future supplies and needs. Both public and private water resources will be considered.
420. **Cooperation in Agriculture (3).** Lec. 4. Pr., graduate standing or consent of instructor. Includes cooperative and economic theory as well as economic and legal aspects of co-operatives. Focuses on the institutional framework of cooperatives in the American economy. (A course designed primarily for credit at off-campus centers.)
441. **History and Philosophy of Extension (3).** Lec. 4. Pr., junior standing. Provides a background, understanding, and appreciation of the Cooperative Extension Service as an educational institution. This course can meet the needs of students preparing for work in Cooperative Extension as well as those currently so engaged. (Credit in HE 401 excludes credit in this course.)
460. **Introduction to Econometrics (3).** Pr., MH 122 or equivalent, EC 245 or equivalent, and AS 202 or equivalent, and junior standing. Formulation of elementary economic models using economic theory and mathematics with certain basic assumptions or axioms. Emphasis is placed on the mathematical tools used in economic analysis.
461. **Sociology of Rural Life (3).** Lec. 4. Pr., graduate standing or consent of instructor. Rural sociology with consideration of the social structures and social processes of rural social systems. Credit for AS 361 precludes credit for this course. (This course is designed primarily for credit at off-campus centers.)
462. **Rural Communities Around the World (3).** Pr., SY 201 or AS 361, and junior standing. Comparative study of the structure and function of rural communities throughout the world with emphasis on their limitations and potentials for social changes and adjustments. Rural life in the United States will be used as the primary basis for comparison.
480. **Agricultural Commodity Marketing. A. Livestock, B. Dairy, C. Poultry, D. Crops Marketing (3).** Pr., AS 202 or EC 200 and junior standing. May be taken up to a maximum of 12 hours but work may not be repeated in any one area. Economic analysis of market movement and pricing, functional analysis, and institutional aspects of marketing major products in each category.
490. **Senior Seminar (1).** Lec. 1. Pr., senior standing. Current developments in Agricultural Economics; the role of Agricultural Economics in the general economy.

GRADUATE COURSES

601. **Advanced Farm Management (5).** Pr., graduate standing or consent of instructor. Advanced theory and application of farm management principles and other economic concepts in agriculture. Emphasis is on successful and profitable organization, operation, and management of various types of farms. Optimum utilization of available resources on individual farms.
602. **Advanced Agricultural Prices (5).** Pr., EC 245 and graduate standing or consent of instructor. Methods of price analysis, separation of fluctuations from price trends, measurement of changes in supply and demand of farm products. Factors affecting prices, price trends, price cycles, and other price structures.
603. **Land Economics (5).** Pr., graduate standing or consent of instructor. Principle economic and institutional factors affecting man in his use of land. Supply, demand, and future requirements for land. Property rights, land planning, zoning, and other social controls affecting land utilization. Land appraisal and valuation.
605. **Advanced Agricultural Marketing (5).** Pr., graduate standing or consent of instructor. Theory of marketing with emphasis on its application to methods used and problems faced in marketing Alabama-produced farm products. Objectives in agricultural marketing.
606. **Agricultural Market Organization (5)** Pr., EC 451 and graduate standing or consent of instructor. Emphasis on the theoretical approach to marketing problems characterized by imperfectly competitive structures and multiple markets separated by time, space, and form attributes. Theory of interregional trade and location of economic activity. Efficiency of firms and product movement.

608. **Economics of Agricultural Production (5).** Pr., EC 451 and graduate standing or consent of instructor.
Resource allocation and efficiency of production. Production and efficiency in the firm, between firms, and between agriculture and other industries. Influences on agricultural resource allocation and efficiency of risk and uncertainty including price instability, institutional changes, technological advances, imperfect knowledge of production methods, and variations in the human element with emphasis on the role of management.
609. **Dynamics of Agricultural Production and Management (5).** Pr., AS 608 and graduate standing or consent of instructor.
Emphasis on dynamics of resource allocation and efficiency of production as influenced by price, institutional, and technological changes. Consideration of imperfect knowledge and the human element in management.
616. **Resource Economics, Policies and Programs (5).** Pr., graduate standing or consent of instructor.
Impact of resource development on regional economic growth. Effect of taxation and tax policies. Interaction between technological change, resource use, and economic growth. Analysis of current policies and programs.
641. **Extension Methods (3).** Lec. 4. Pr., AS 441 or the equivalent.
Various methods that may be used in projecting Extension programs are reviewed and related to effective program accomplishment for particular objectives and under different conditions that might prevail.
642. **Extension Programs (3).** Lec. 4. Pr., AS 441 or the equivalent.
The over-all Extension organization and its relation to the steps and procedures of program development and evaluation. Designed particularly to meet the needs of persons responsible for Extension program development and evaluation at the county level.
651. **Farm Organization and Management (3).** Lec. 4. Pr., graduate standing.
Formation and integration of family and farm business goals; acquisition, organization, operation and management of successful farm businesses; organization and management of efficient farm units. (Credit for both AS 651 and AS 601 may not be used to meet requirements for the Master's degree.)
652. **Agricultural Prices and Marketing (3).** Lec. 4. Pr., graduate standing.
Principles and problems in marketing agricultural products. Objectives in agricultural marketing. Factors involved in the pricing process of agricultural products and markets. (Credit for both AS 652 and AS 602 may not be used to meet requirements for the Master's degree.)
653. **Public Policy in Agriculture (3).** Lec. 4. Pr., graduate standing.
Concepts, objectives, and operation of public policies affecting agriculture; development of agricultural policies in the United States; alternative methods of dealing with farm problems and opportunities at national, state, and local levels.
662. **Social Organization and Communities (3).** Lec. 4. Pr., graduate standing.
The organization of rural society and an application of the group dynamics perspective to rural community life, problems in rural living, and proposals for facilitating action programs in rural areas.
670. **Research Methods in Agricultural Economics and Rural Sociology (3).** Pr., graduate standing and consent of instructor.
680. **Special Problems in Agricultural Economics and Rural Sociology.** Credit to be arranged.
690. **Seminar (1-1-1).** Fall, Winter, Spring.
699. **Research and Thesis.** Credit to be arranged.

Agricultural Engineering (AN)

Professors Kummer, and Neal

Research Lecturers Cooper, Gill, Larson, Nichols, Reaves, and Taylor

Associate Professor Renoll

Assistant Professors Hendrick, and Hermanson

101. **Engineering and Agriculture (1).** Lec. 1.
The role of engineering in agriculture.
102. **Agricultural Engineering Profession (1).** Lec. 1.
Developments in the major fields of agricultural engineering.
201. **Soil and Implement Mechanics (3).** Lec. 2, Lab. 3. Fall. Pr., EG 104.
Soil and implement relationships of common tillage tools. Machinery economics with respect to size and capacity of machines. Implement design as related to tillage.

205. **Agricultural Engineering Design (2). Lab. 4.**
Study of graphical representation of agricultural systems. Exercises in working drawings of agricultural machines, structures, and materials handling devices.
302. **Agricultural Structures Design I (3). Lec. 2, Lab. 3. Pr., ME 208.**
Analysis and design of structural systems of agricultural buildings.
307. **Physical Properties of Agricultural Materials (3). Lec. 3. Pr., BY 101, ME 208.**
Physical and mechanical properties of agricultural materials as related to machine design and agricultural process engineering.
309. **Electrical Systems in Agriculture (3). Lec. 3. Pr., EE 304.**
Application of electrical power, equipment and control devices to agricultural systems.
350. **Soil and Water Technology (5). Lec. 4, Lab. 3. Fall, Spring, Summer.**
Technical application of soil and water resources management. Irrigation system planning and equipment selection.
351. **Agricultural Machinery Technology (5). Lec. 4, Lab. 3. Fall, Spring, Summer.**
Study of agricultural machinery with emphasis on utilization, management, selection, and economic justification.
352. **Tractor and Engine Technology (5). Lec. 4, Lab. 3. Winter.**
Study of tractors and engines with emphasis on basic principle of operation, fuels used, size selection, utilization, and economic justification.
353. **Farm Building Technology (5). Lec. 4, Lab. 3. Winter.**
Selection of materials, methods of construction and functional needs of modern farm buildings.
354. **Agricultural Processing Technology (5). Lec. 4, Lab. 3.**
Principles and methods of agricultural processing systems; includes storing, drying, pelleting, mixing and automatic materials handling systems.
401. **Mechanics of Tractor Power (5). Lec. 3, Lab. 4. Winter. Pr., ME 310, junior standing.**
Construction, design, and operating principles of the farm tractor. Mechanics of tractor stability, traction, weight transfer, and safety. Tractor efficiency as influenced by fuel, ignition, temperature, and power transmissions.
403. **Soil and Water Engineering (5). Lec. 4, Lab. 3. Fall. Pr., CE 210, CE 308, junior standing.**
A study of the relationship of soils, rainfall, runoff and topography to drainage and terrace systems design.
405. **Irrigation Design (5). Lec. 4, Lab. 3. Spring. Pr., AN 403 and junior standing.**
The design of flood, furrow, and sprinkler irrigation systems, including the development of water supply sources, pumping and power requirements; the determination of irrigation efficiencies and techniques.
407. **Agricultural Machinery Design Analysis (5). Lec. 3, Lab. 4. Fall. Pr., AN 201, junior standing.**
Design, construction, and comparative analysis of component parts of farm machines other than tractors. Includes use of dynamometers, electrical resistance strain gages and functional analysis instrumentation.
408. **Agricultural Tractor Design Analysis (3). Lec. 2, Lab. 3. Winter, Spring. Pr., AN 401, junior standing.**
Use of electronic analysis instrumentation equipment in the evaluation of tractor design elements and construction principles with respect to thermal and tractive efficiency, vehicle stability, tractor hitches and weight distribution.
409. **Agricultural Processing (3). Lec. 3. Pr., AN 307, AN 309 and junior standing.**
Analysis and design of materials handling systems and processing equipment.
414. **Environmental Animal Physiology and Bioengineering (5). Lec. 3, Lab. 4. Pr., ZY 424 or AN 302 or equivalent; senior standing and consent of instructors. (This course same as PH 414.)**
Practices and theories of environmental engineering and science directly applicable to animal environments. Physiological responses of animals to various environmental parameters.
415. **Agricultural Meteorology (5). Winter. Pr., junior standing and approval of instructor.**
Meteorological variables and their modification near the surface of the earth. Included are solar and terrestrial heat exchange; humidity, temperature, wind relationships; instrumentation and measurement of meteorological elements and the application of meteorological information to agriculture.
416. **Agricultural Structures Design II (3). Lec. 3. Pr., AN 302, AN 414 and junior standing.**
Functional requirements and design of animal shelters and agricultural storage buildings.

422. Farm Power and Equipment (5). Summer. Half-quarter course. Pr., AN 303, junior standing. For Vocational Agriculture Teachers.
424. Farm Electrification (5). Summer. Half-quarter course. Pr., junior standing. For Vocational Agriculture Teachers.
426. Farm Irrigation (5). Summer. Half-quarter course. Pr., junior standing. For Vocational Agriculture Teachers.
432. Engineering in Agriculture I—Agricultural Machinery (3). Lec.-Dem. 4. Pr., graduate standing.
The utilization of modern agricultural machinery on the farm with emphasis on safety, management, costs, economic justification, and principles of operation. (Credit for both AN 432 and AN 422 may not be used to meet requirements for the Master's degree.)
434. Engineering in Agriculture II—Agricultural Power (3). Lec.-Dem. 4. Pr., graduate standing.
Study of farm tractor and power units used on the farm; includes the basic principles of operation with major interest toward lubrication, costs, operational problems, safety and a comparison of gasoline, Diesel, and LP gas fuels, and units. (Credit for both AN 434 and AN 422 may not be used to meet requirements for the Master's degree.)

COURSES PRIMARILY FOR GRADUATE STUDENTS

601. Land Conservation and Development (5). Lec. 4, Lab. 3. Pr., AN 403.
Fundamental problems of hydrology and soil physics applied to the soil erosion process and engineering practices for erosion control. Principles of design for farm drainage and irrigation systems.
602. Advanced Farm Power and Machinery (5). Arrange. Pr., AN 201 and 401.
Principles of operation and analysis of design of basic machine elements, hydraulic systems and functional requirements of farm power units, agricultural machinery and materials of construction.
604. Agricultural Engineering Problems. Credit to be arranged not to exceed a total of 5 hours.
Special advanced engineering and design problems.
605. Soil Dynamics (5). Pr., AY 455.
Analysis and measurements of soil reactions, as affected by the physical properties of the soil, when subjected to forces imposed by tillage implements and traction devices. Among the soil physical properties considered are shear, cohesion, adhesion, consolidation, plasticity and abrasion.
608. Seminar. Credit to be arranged. All quarters.
Reviews and discussions of research techniques, current scientific literature and recent developments in agricultural engineering research.
699. Research and Thesis. Credit to be arranged.
May be taken more than one quarter.
799. Doctoral Research and Dissertation. Credit to be arranged.

Agronomy and Soils (AY)

*Professors Ensminger, Adams, Donnelly, Hood, Rogers, Scarsbrook,
Sturkie, and Wear*
Associate Professors Dixon, Hiltbold, Hoveland, Johnson, and Patrick
Assistant Professor King

201. Grain Crops (5). Lec. 4, Lab. 2. Fall, Spring.
Fundamental factors involved in the economic production of corn, small grains, grain sorghum, peanuts and soybeans.
304. General Soils (5). Lec. 4, Lab. 2. Winter, Spring. Pr., CH 105 and 105L or CH 207.
A survey course dealing with the formation, classification, composition, properties, management, fertility, and conservation of soils in relation to the growth of plants.
305. General Soils (5). Lec. 4, Lab. 2. Winter. Pr., CH 103-104.
A survey course dealing with the formation, classification, composition and properties of soils and their influence on vegetative growth and development on forest lands. Open only to students in Forestry.
306. Soil Morphology and Survey (5). Lec. 3, Lab. 4. Spring. Pr., AY 304, 305 or 307.
Physical, mineralogical and chemical properties of soils are studied in relation to their classification for agricultural and engineering uses. Specially designed to fit students for employment as soil surveyors in state and federal agencies.

- 307. General Soils (5).** Lec. 4, Lab. 2. Fall, Spring. Pr., CH 103-104.
Survey of the general field of soils including genesis, classification and fertility. Open only to students in Vocational Agriculture.
- 310. Earth Science (5).**
A study of the materials of the earth; forces that shape and sculpture the earth's surface, including weathering, water, soil formation and erosion; soil geography; and historical geology. (Not open to students in School of Agriculture. Credit toward degree may not be earned in both this course and a General Soils course.)
- 401. Forage Crops (5).** Lec. 4, Lab. 2. Fall, Winter. Pr., junior standing.
Deals with both grass and legume forage crops. The crops are considered from the standpoint of (a) pasture crops, (b) hay and silage crops, (c) soil improving crops.
- 402. Soil Fertility (5).** Lec. 5. Spring. Pr., AY 304, 305 or 307, and junior standing.
Lectures, demonstrations and problems designed to illustrate principles of soil fertility as related to fertilizer practices and crop production. An advanced course required of all students majoring in Agronomy and Soils. Either AY 402 or AY 407, but not both, may be used to satisfy the minimum requirement for the Master's degree.
- 404. Cotton Production (5).** Lec. 5. Winter. Pr., junior standing.
Most of the time will be devoted to cotton with a limited amount of time devoted to other fiber crops.
- 405. Turf and Its Management (3).** Lec. 2, Lab. 2. Fall, odd years. Pr., AY 304, BY 306, BY 309, and junior standing.
Species of turf crops in relation to latitude, soil type, shading, establishment, fertility, and maintenance.
- 406. Commercial Fertilizers (3).** Lec. 3. Winter. Pr., AY 304, 305 or 307, or by special permission of instructor; also junior standing.
Raw material reserves; manufacture, and properties of fertilizer materials; properties and formulation of mixtures; relative efficiency of various plant nutrient sources; and related agronomic problems.
- 407. Soil Management (5).** Lec. 5. Summer. Pr., AY 304, AY 305, or AY 307, and junior standing.
Physical, chemical and biological properties of soils and their management. An advanced course designed for students in Vocational Agriculture. Either AY 402 or AY 407, but not both, may be used to satisfy the minimum requirement for the Master's degree.
- 408. Soil Resources and Conservation (5).** Lec. 4, Lab. 2. Fall. Pr., AY 304, 305 or 307 and junior standing.
Soils as a natural resource for land-use planning; their classification and management for crop production, recreation, and urban and industrial development.
- 409. Seed Production (3).** Spring, odd years. Pr., AY 201, or 401 and junior standing.
Methods and factors affecting production, storage, and processing seed.
- 410. Methods of Plant Breeding (5).** Lec. 4, Lab. 2. Fall, even years. Pr., ZY 300 and junior standing.
A general course in the principles and methods of plant breeding.
- 411. Soil Management (3).** Lec. 4. Pr., AY 304, 305 or 307 and graduate standing.
Classification, physical properties, moisture, organic matter, and pH of soils, and their management with respect to these properties. (Credit for both AY 411 and AY 402, or AY 407 may not be used to meet requirements for the Master's degree.)
- 412. Advanced Forage Crops (3).** Lec. 4. Pr., AY 401 and graduate standing.
Forage species and mixtures, their establishment, maintenance and management for different soils and systems of grazing. (Credit for both AY 412 and AY 403 may not be used to meet requirements for the Master's degree.)
- 414. Principles and Use of Herbicides in Crop Production (3).** Lec. 2, Lab. 2. Pr., CH 104 and junior standing.
Principles and use of herbicides in agronomic crops. Designed to acquaint the student with methods of application including equipment, time of application, methods of incorporation, and formulations of herbicides. The fate of herbicides in soil and the residual effect on succeeding crops will be studied.
- 455. Soil Physics (5).** Winter, even years. Pr., AY 304 and junior standing.
Lectures and demonstrations to illustrate fundamental physical properties of soils.

GRADUATE COURSES

- 601. Agronomy Problems (1-5).** Credit to be arranged.
Conferences, problems, and assigned reading in soils and crops, including results of agronomic research from the substations and experiment fields.

602. Plant Biological Chemistry (5). Fall, odd years. Pr., CH 203 or CH 207.
Biochemical reactions and factors influencing them. Major emphasis is placed on those reactions concerning plants.
606. Soil Microbiology (5). Lec. 3, Lab. 4. Spring, odd years. Pr., AY 402 and VM 200.
Soil microorganisms and their physiological processes related to soil development and plant nutrition. The role of microorganisms affecting the chemical and physical properties of soils will be studied, with emphasis on the cyclical transformations of nitrogen, phosphorus, carbon, and sulfur.
608. Experimental Methods (5). Fall, even years.
Experimentation in the agricultural sciences including experimental techniques, interpretation of research data, use of library references and preparation of publications; and consists of problems, assigned readings, and lectures.
615. Seminar in Genetics (1). Pr., ZY 300.
Reports will be presented by students and staff members on current research and the literature in the field of genetics.
616. Advanced Plant Breeding (5). Lec. 4, Lab. 2. Winter, even years. Pr., ZY 300.
Principles, methods, and techniques involved in plant breeding. Laboratory work will consist of studying active plant breeding programs, studying pollination techniques, and making pollinations. A term paper will be required.
617. Experimental Evolution (5). Spring, even years. Pr., ZY 300 and AY 616.
A study of the factors affecting the evolution of species.
618. Crop Ecology (5). Winter, even years. Pr., BY 306, 413, and AY 402.
Environmental factors influencing the growth of crop plants.
619. Theories in Forage Crops Management (5). Lec. 3, Lab. 4. Winter, odd years. Pr., BY 306, 309, and AY 402.
Principles involved in successful establishment, maintenance and management of crops used for grazing, hay and silage.
620. Philosophy and Interpretation of Experimental Research (3). Lec. 4. Pr., graduate standing.
Systematic study of the principles and methods of experimental research; the utility of experimental designs; and the utilization of statistical and graphical aids in the interpretation of data. Mathematical comparisons of the efficiency of designs and calculations of statistical values are not a part of this course.
653. Soil Genesis and Classification (5). Spring, even years. Pr., AY 306.
Factors and processes which influence soil formation and properties. Weathering of minerals with particular emphasis on clay mineral formation considered in relation to soil classification units. Classification of soils at the family and higher categorical levels presented.
654. Advanced Soil Fertility (5). Spring, odd years. Pr., CH 206, AY 402 and 606.
Composition and properties of soils in relation to the nutrition and growth of plants.
655. Soil and Plant Analysis (5). Lec. 2, Lab. 6. Winter, odd years. Pr., CH 206 and AY 402.
Principles, methods, and techniques of quantitative chemical analysis of soils and plants applicable to soil science.
656. Soil Clay Mineralogy (5). Lec. 4, Lab. 2. Fall, even years.
Crystal structure and properties of the important clay size minerals of soils and clay deposits combined with identification techniques involving x-ray diffraction and spectroscopy, differential thermal analysis, electron microscopy, specific surface analysis, and infrared absorption.
657. Advanced Soil Chemistry (5). Fall, odd years. Pr., CH 409, AY 655 and 656.
Physicochemical properties of soil colloids.
658. Advanced Soil Physics (5). Lec. 2, Lab. 6. Pr., MH 263, PS 205-206, and AY 455.
Physical properties of soils in relation to plant growth. Emphasis is placed on methods of measuring soil physical properties and the interpretation of these measurements in terms of plant growth.
699. Research and Thesis. Credit to be arranged.
Research and thesis on problems related to crop production, plant breeding, soil fertility and soil chemistry.
799. Doctoral Research and Dissertation. Credit to be arranged.

Animal Science (AH)

*Professors Warren, Anthony, Patterson, Strength
Associate Professors Harris, Huffman, Parks, Smith, Squiers, Tucker,
Turney, and Wiggins
Instructor Collins*

200. **Introductory Animal Husbandry (5).** Lec. 4, Lab. 2. Fall, Winter, Spring.
Basic course to orient the student and provide some understanding of the scope and importance of the field. The importance of livestock to agriculture and to the nutrition of people. The role of nutrition, breeding, selection and management in livestock production.
204. **Animal Biochemistry and Nutrition (5).** Fall, Winter, Spring. Pr., CH 104.
Principles of animal biochemistry and nutrition and the nutritional requirements of farm animals.
301. **Livestock Judging (3).** Lec. 1, Lab. 4. Winter, Spring. Pr., AH 200.
Theory and practice in the selection of beef cattle, swine, sheep and horses.
302. **Feeds and Feeding (3).** Fall, Spring. Pr., AH 204.
Principles and practices of balancing and compounding of rations for beef cattle, sheep, and swine.
303. **Livestock Production (5).** Lec. 4, Lab. 2. Winter. Pr., AH 204.
Efficient practices for selection and management of beef cattle, sheep, and swine. For students in Vocational Agriculture and those whose curricula do not include AH 401 and AH 402. Ten or more hours of credit in AH 401, AH 402, or AH 405 excludes credit for AH 303.
304. **Meats (3).** Lec. 1, Lab. 4. Fall.
Study and practice in slaughtering, cutting, grading, judging, and evaluating carcasses of meat animals.
309. **Live Animal and Carcass Evaluation (3).** Lec. 1, Lab. 4. Spring. Pr., AH 200.
Classifying and grading market hogs, cattle and sheep with major emphasis on indicators of carcass merit. Carcass grading, yield grading and evaluation.
310. **Meat and Meat Products (3).** Lec. 2, Lab. 2. Spring. General Elective.
A survey course in the theory and practice of processing, preservation, selection and uses of meats. Degree credit may not be earned in both AH304 and AH310.
401. **Swine Production (5).** Lec. 4, Lab. 2. Fall, Spring. Pr., AH 200, AH 204, junior standing.
Practical problems involved in the breeding, feeding, and management of swine for economic production.
402. **Beef Cattle Production (5).** Lec. 4, Lab. 2. Fall, Winter. Pr., AH 200, AH 204, and junior standing.
Practical phases of breeding, feeding, and management of beef cattle for economic production.
403. **Animal Breeding (5).** Lec. 4, Lab. 3. Winter. Pr., ZY 300 and junior standing.
Application of genetic principles to the breeding of cattle, sheep, and swine. Studies of different systems of breeding and selection and their related efficiencies for livestock improvement.
405. **Sheep Production (5).** Lec. 4, Lab. 2. Spring. Pr., AH 200, AH 204, and junior standing.
Types and breeds of sheep; buildings and equipment; types of sheep raising and flock management; nutritional requirements and feeding; sheep breeding, selection and culling; performance testing; wool grading and marketing; lamb grading and marketing; common diseases and parasites and their control.
406. **Animal Reproduction (5).** Lec. 4, Lab. 2. Fall. Pr., junior standing.
Anatomy and physiology of the male and female reproductive tract; hormones governing reproduction; estrus and estrus cycle; ovulation, mating, gestation, parturition; lactation; sperm physiology; collection, storage and dilution of semen; artificial insemination; factors affecting fertility; causes of sterility in males and females, pregnancy tests.
407. **Advanced Livestock Judging (3).** Lec. 1, Lab. 4. Fall. Pr., AH 301 and approval of instructor.
An advanced course in the selection and grading of livestock.
408. **Applied Animal Nutrition (5).** Lec. 4, Lab. 2. Winter. Pr., AH 204 and senior standing.
An advanced study of the principles of animal nutrition and their application to the production of farm animals, including the study of physiology of nutrition, metabolism of nutrients and recent nutritional developments.

409. **Horse Production (3).** Lec. 2, Lab. 2. Spring.
The selection, breeding, feeding, management and use of horses in the Southeast.
410. **Meats II (3).** Lec. 2, Lab. 2. Winter. Pr., AH 304 and junior standing.
A study of meat curing and processing procedures and the biochemical alterations of meat during aging, curing and processing.
411. **Undergraduate Seminar (1).** Pr., senior standing.
Lectures, discussions and literature reviews by staff, students and guest lecturers.
412. **Advanced Animal Biochemistry (5).** Lec. 4, Lab. 3. Fall. Pr., CH 206 and CH 208 and senior standing.
A study of the classification, structure, and chemistry of the major chemical constituents of living matter.
450. **Advanced Animal Nutrition and Livestock Feeding (3).** Lec. 4. Pr., graduate standing.
Principles of nutrition, nutritional requirements, compounding of rations, role of additives in livestock feeds and study of newer research findings.
451. **Breeding and Genetic Improvement of Farm Animals (3).** Lec. 4. Pr., graduate standing.
A study of basic genetic principles and their application to the breeding of farm animals. Systems of breeding and selection.
452. **Applied Swine Production (3).** Lec. 4. Pr., graduate standing.
A study of the basic principles of swine production and the application of recent developments.
490. **Special Problems (1-5).** Credit to be arranged. Pr., departmental approval and junior standing. Not open to graduate students.
Students will work under the direction of a staff member on specific problems.

GRADUATE COURSES

(Graduate Standing Required)

600. **Meat Science (3).** Lec. 2, Lab. 2. Winter. Pr., AH 410 and CH 207.
A comprehensive study of the chemical, physical, histological and bacteriological properties of meats.
603. **Methods of Nutrition and Biochemistry (5).**
Methodology including chemical, photometric, biological, and microbiological procedures used in nutritional and biochemical investigations.
604. **Proteins, Amino Acids and Related Nitrogenous Compounds (5).** Pr., CH 418 or equivalent.
The nutritional importance of these substances and their relation to growth, reproduction and health of animals.
605. **Carbohydrates and Fats and Energy Metabolism (5).** Pr., CH 418 or equivalent.
Advanced study of the chemistry and metabolisms of carbohydrates and lipids. Special emphasis given to the reactions, energetics and significance of the various metabolic pathways.
607. **Comparative Animal Nutrition (5).** Pr., AH 408.
Advanced studies of the comparative nutritional requirements in beef cattle, sheep, swine and laboratory animals.
608. **Advanced Animal Reproduction (5).** Pr., AH 406, ZY 424.
Physiology and endocrinology of reproduction.
609. **Advanced Beef Cattle Production (5).**
Advanced studies relating to the production of beef cattle.
610. **Advanced Swine Production (5).**
Advanced studies of swine production.
611. **Seminar.** Credit to be arranged.
612. **Genetics of Populations (5).** Pr., AH 403.
Genetic composition of populations and factors affecting rates of change and conditions of equilibrium.
613. **Vitamins (5).** Pr., CH 208 and satisfactory courses in animal nutrition.
The specific functions and chemistry of the vitamins.
614. **Minerals (5).** Pr., CH 208 and satisfactory courses in animal nutrition.
The specific functions of minerals in animal metabolism.
615. **Nutritional Interrelations (5).** Pr., CH 418 or equivalent.
Specific metabolic relationships among vitamins, amino acids, fats, carbohydrates and minerals and the effect of nutritional antagonists.
616. **Enzymes (5).** Pr., CH 418 or equivalent.
The chemistry, mechanism of action and role of enzymes in metabolism.

617. **Microbial Biochemistry (5).** Pr., 5 hrs. of microbiology and departmental approval.
The anatomy, growth and metabolism of the bacterial cell with emphasis on the biochemical makeup of the cell and the regulation of its activities; the use of microorganisms for quantitative assays.
618. **Current Problems and Practices in Livestock Farming (5).** Summer.
Intensive studies of new research findings and their application to livestock production on Alabama farms. Primarily for Vocational Agriculture Teachers and County Extension Workers.
619. **Experimental Methods (5).** Pr., satisfactory courses in statistics.
Research methods in the animal sciences including design of experiments, experimental techniques, analysis and interpretation of data, evaluation of research literature and preparation of publications.
620. **Experimental Pathology of Metabolic Diseases (5).** Winter, by arrangement. Pr., VM 418, satisfactory courses in histology, biochemistry, physiology and general pathology.
A comprehensive study of the structural and functional changes associated with metabolic diseases.
621. **Histochemistry (5).** Spring, by arrangement. Pr., AH 620.
Application and evaluation of histochemical and cytochemical methods in the study of cellular constituents in tissues of normal animals as well as those showing metabolic aberrances.
690. **Special Problems. (1-5 hours. Credit to be arranged.)**
Conference problems, assigned reading and reports in one or more of the following major fields; (a) animal biochemistry and nutrition, (b) animal breeding and genetics, (c) physiology of reproduction, (d) nutritional pathology, (e) animal production, (f) experimental pathology, (g) histochemistry, and (h) meats.
699. **Research and Thesis. Credit to be arranged.**
Research and thesis may be on technical laboratory problems or on problems directly related to beef cattle, sheep or swine.
799. **Doctoral Research and Dissertation. Credit to be arranged.**

Architecture (AR)

Head Professor McMinn

Professor Schaefer

Associate Professors Doerstling, LeVine, Morrill, Pfeil, and Taspinar

Assistant Professors Carter, Davis, Kaip, Pickard

Instructors Cameron, and Rabby

- 110-11. **Design Fundamentals (5-5).** Lab. 15-15.
Techniques and methods in graphic communication, and introduction to design principles.
- 201-2-3. **Architectural Design (5-5-5).** Lec. 2-2-2, Lab. 9-9-9. Pr., AR 103.
Principles of spatial composition and structural organization; approaches to architectural design by the analysis of design determinants—9 hours per week in design laboratory. Two hours per week of discussions and laboratory criticism.
- 301-2-3. **Architectural Design (5-5-5).** Lab. 15-15-15. Pr., AR 203. Coreq., BT 220.
Admission only upon recommendation of the Committee on Design.
Analysis and solution of buildings of moderate complexity, with emphasis on domestic, civic, and recreational problems; increased attention to construction and finish details. Research, discussions, drawings, models.
360. **Appreciation of Architecture (3).** General elective. Pr., sophomore standing. (Not open to AR and ID students.)
A survey of architectural development with particular attention to American and contemporary examples. Illustrated lectures, readings, essays.
- 361-2-3. **History and Theory of Architecture (3-3-3).** Pr., AR 203.
An analysis of cultural institutions of the past and the study of the principles of planning and architectural composition, town planning, and landscape architecture as resulting from these forces and structural knowledge of the time. Study of the Ancient, Medieval, and Oriental cultures. Illustrated lectures, readings, drawings, and reports.
370. **Spaces for Living (3).** General elective. Pr., junior standing. (Not open to AR and ID students.)
A survey of contemporary concepts of design, spatial organization, materials, furnishings, and gardens in relation to all major types of residential architecture. Illustrated lectures, readings, reports.

374. Planning (2). Lec. 2.
Introduction to principles of city and regional planning. Consideration of the influences which shape urban development.
- 401-2-3. Architectural Design (5-5-5). Lab. 15-15-15. Pr., AR 303, Coreq., BT 313.
Analysis and solution of buildings of advanced complexity, with increased emphasis on the relation between space organization and the structural system. Research, discussions, drawings, models.
- 461-2-3. History and Theory of Architecture IV-V-VI (3-3-3). Pr., AR 363.
Continuation of AR 363. Study of Renaissance, Baroque, Colonial American, and Modern cultures. Illustrated lectures, readings, drawings, and reports.
- 501-2. Architectural Design (5-5). Lab. 15-15. Pr., AR 403. Admission upon recommendation of the Committee on Design.
Analysis and design of buildings of advanced complexity, with emphasis on multi-story commercial and institutional projects; group planning and advanced site study. Research, reports, discussions, drawings, models.
503. Architectural Design (7). Lab. 21. Pr., AR 502, AR 512.
The development of a major design problem under direction of the Committee on Design. Drawings, models, details, and written explanations, oral presentation for jury consideration.
512. Design Research (2). Pr., AR 501.
The selection and comprehensive programming of a terminal problem in architecture to be executed in AR 503.
- 521-22. Professional Practice (5-5). Pr., fifth year standing.
Study of procedures in architectural practice; construction methods, estimation of quantities and costs. Office organization; legal requirements; professional organizations and relations; civic responsibility, professional ethics.
558. Seminar in Contemporary Concepts (5). Pr., AR 463.
A study of current achievements in world architecture with emphasis on broad movements and emerging patterns. Research, directed reading, reports, and discussion.
559. Seminar in Historical Problems (5). Pr., AR 463.
Open to students who have shown ability, initiative, and industry in developing individual projects. Research, reports, and drawings under supervision on approved topics.
560. The Architect and Society (2). Pr., 4th year standing.
A study of the social, economic, and political factors which have influenced the contemporary expression of architectural design and practice. Analysis of great works and philosophies which led the way to new approaches in design. Appreciation of aesthetics and function as applied to form. Lectures, outside reading and reports.
561. Seminar in Urban Design (2). Pr., 4th year standing.
Directed reading and discussion of contemporary developments in urban planning concepts and solutions. Reports and drawings.
562. Seminar in Technological Problems (3). Pr., 4th year standing.
A study of current technological advances in the building industry and evaluation of their impact upon architecture.
563. Seminar in Architectural Literature (2). Pr., 4th year standing.
A guided study and discussion of selected readings.
564. Art and Architecture Seminar (3). Pr., 4th year standing.
Readings, discussions, and projects on the relation of the graphic and plastic arts to architecture.
571. Honors Program. Credit to be arranged up to 5 hrs. Pr., 4th year standing.
Admission only by the Committee on Honors Program. Development of an area of concentration through independent study. Scope of work and its evaluation to be determined by the Committee. May be taken more than one quarter.

Courses specifically required in the Interior Design curriculum (ID)

- 215-16-17. Elements of Interior Design (2-2-2). Lec. 1, Lab. 3. Pr., AR 111.
An introductory survey of the profession of interior design including professional procedures, relationships, ethics, correlation with architecture and other arts. Lectures, readings, discussions and research.
- 305-6-7. Interior Design (5-5-5). Lab. 15-15-15. Pr., AR 203. Admission upon recommendation of the Committee on Design.
Analysis and solution of interiors of moderate complexity, with emphasis on domestic and commercial problems. Research, discussion, drawings, models.
- 365-6. Period Interiors (2-2).
A survey of the development of interior spaces, furniture, fabrics, and accessories from pre-Renaissance to 1900. Illustrated lectures, readings, reports, and field trips.

367. **Contemporary Interiors (2).** Lec. 2. Pr., AR 366.
A survey of the fundamental aspects of interior design, spatial order and characteristics, furniture and fabric design, from 1900 to date. Illustrated lectures, readings, reports.
- 405-6. **Interior Design (5-5).** Lec. 2-2, Lab. 9-9. Pr., AR 307. Admission upon recommendation of the Committee on Design.
Analysis and solution of interiors of advanced complexity, with emphasis on institutional and public problems. Research, discussions, drawings, models.
407. **Interior Design (7).** Lec. 2, Lab. 15. Pr., AR 406.
The development of a major design problem under the direction of the Committee on Design. Drawings, models, details; oral presentation for jury consideration.
408. **Interior Design Research (2).** Lec. 1, Lab. 3. Coreq., AR 406.
The selection and comprehensive programming of a terminal problem in interior design to be executed in AR 407.
441. **Professional Practice (2).** Lec. 1, Lab. 3.
Office procedure and methods for interior designers; the technique and execution of working drawings for buildings, cabinetry and interior details; specifications. Discussions, drawings, inspections, reports.

Courses specifically required in the Industrial Design curriculum (IN)

210. **Industrial Design (5).** Lec. 1, Lab. 12. Pr., AR 105, 110, and 111. Admission only upon recommendation of the committee on design (1.00 overall).
An approach to the problems of visual communication. Perception theory, design fundamentals; color, figure organization, movement and balance, proportion and rhythm.
211. **Industrial Design (5).** Lec. 1, Lab. 12. Pr., AR 210.
An extension of principles encountered in Industrial Design I. A study and analysis of Industrial Design Fundamentals.
212. **Industrial Design (5).** Lec. 1, Lab. 12. Pr., AR 211.
A study of structural and functional relationship of design elements; convenience, utility, safety, maintenance.
221. **Materials & Technology (5).** Lec. 5. Pr., sophomore standing.
Introduction to the properties and use of various materials in manufacture and a study of the machine and tool processes used by industry. Survey from the Designer's viewpoint.
222. **Technical Illustration (5).** Lec. 5. Pr., sophomore standing.
Introduction to axonometric drawing, perspective, and freehand graphics, as used by Industrial Designers.
223. **Industrial Design Methods (5).** Lec. 5. Pr., sophomore standing.
An introduction to the methods and organizational procedures employed in the analysis and solutions of design problems. Survey of philosophies and theories of design.
308. **Design Workshop (3).** Lec. 1, Lab. 2. Pr., AR 210.
Modelmaking and creative modeling. Study Models, Presentation Models, Mock-ups, Prototypes.
310. **Industrial Design (5).** Lab. 15. Pr., AR 212, AR 222, AR 223, EG 105.
Admission only upon recommendation of committee on design. (1.00 overall and 1.33 from AR 210, 211, 212.)
Design of machines and instruments. Arrangements of elements in systems.
311. **Industrial Design (5).** Lab. 15. Pr., AR 310, PS 204.
Design of domestic and office equipment.
312. **Industrial Design (5).** Lab. 15. Pr., AR 311.
Exhibition and packaging problems.
410. **Industrial Design (6).** Lec. 2, Lab. 12. Pr., AR 312.
Industrialized building. Study of building components produced by industrial means.
411. **Industrial Design (6).** Lec. 2, Lab. 12. Pr., AR 410. Admission only upon recommendation of committee on design. (1.25 overall and 1.50 from AR 310, 311, 312, 410.)
Design or re-design of products of advanced complexity.
412. **Industrial Design Thesis (6).** Lec. 2, Lab. 12. Pr., AR 411.
Study of a project involving all design phases; project of the student's own selection and approved by the Committee on Design. Presentation of graphics, models and written explanations, and oral presentation before a Design Jury. The thesis material will be retained by the Department for one year.
415. **History of Industrial Design (5).** Pr., AR 212.
Design from the first Industrial Revolution to the present, with emphasis on the relation between design and science, art, technology, and the humanities.
565. **Seminar in Industrial Design (5).** Lec. 5. Pr., fourth year standing.
Development of individual projects. Research, design, reports, on approved topics.

Art (AT)*Head Professor Applebee**Professors Sykes^{oo}, and Williams**Associate Professors Abney, and Kettunen**Assistant Professors Hatfield, Hiers, Mims, Ross, Strickland, Taugner, and Walker**Instructors Applebee^o, Harper, Jones^o, Mitchell, Morrill, Savelle^o,**Shelton, and Stewart^o*

105. Drawing I (5). Lab. 15.
Representational drawing. Line, light and dark.
106. Drawing II (5). Lec. 2, Lab. 9. Pr., AT 105.
Emphasis on creativity and pictorial organization. Interpretive drawing.
107. Drawing III (5). Lab. 15. Pr., AT 105.
Drawing in various media from casts and models to develop feeling for form, movement and proportions.
113. Perspective (3). Lec. 2, Lab. 3. Pr., AT 105.
Linear perspective. Shadows, Reflections.
181. Design Fundamentals I (5). Lec. 2, Lab. 9.
Plastic elements, Relationship of the arts. Problems in basic design.
182. Design Fundamentals II (5). Lab. 15. Pr., AT 105 and 181.
Relationship of materials and techniques to form. Perception theories. Applied problems.
205. Figure Drawing I (5). Lab. 15. Pr., AT 107.
Drawing from the model in various media with emphasis on proportions, interpretation and expression.
211. Lettering (5). Lec. 5. Pr., AT 181.
Historical development of letters. Anatomy of letters. Spacing. Drill exercises with pen. Fundamental alphabets and compositions of body matter lettered directly.
212. Graphic Processes (5). Lec. 5. Pr., sophomore standing.
Printing processes, photomechanical reproduction, copy-fitting, paper manufacture and usage, related subjects.
215. Figure Construction (5). Lec. 3, Lab. 6. Pr., AT 205.
Lectures deal with form, function and manner of operation of skeletal and muscular parts of the body. Drawing from casts, models and skeleton.
222. Painting I (5). Lab. 15. Pr., AT 106 and 181.
Transparent water color. Study of the medium and of picture structure. Exercises in still life, figure and landscape painting.
224. Painting II (5). Lab. 15. Pr., AT 106 and 181.
Opaque water color. Techniques and properties of the medium. Objective and subjective handlings as a further extension and application of the plastic elements.
227. Sculpture I (5). Lab. 15.
Three dimensional expression. Clay and other media.
305. Printmaking I (5). Lab. 15. Pr., Admission only on recommendation of the Committee on Fine Arts.
Relief print media. Woodblock, linoleum cut, wood engraving.
- 307-8. Figure Drawing II and III (5-5). Lab. 15-15. Pr., AT 205.
Drawing from the model in various media, with emphasis on construction, interpretation and expression.
317. Packaging (5). Pr., junior standing and AT 211.
The study of all types of package design and the materials used. New applications to everyday products.
322. Painting III (5). Lab. 15. Pr., AT 222.
Introduction to oil painting. Exploiting of materials and techniques with still life and the figure as a means for aesthetic exploration.
324. Painting IV (5). Lab. 15. Pr., AT 224 and 322. Admission only upon recommendation of the Committee on Fine Arts.
Painting with optional media and subject matter.
327. Sculpture II (5). Lab. 15. Pr., AT 227.
Three-dimensional expression. Emphasis placed on idea, form, and technique.
338. Art History I (5). Pr., sophomore standing.
The chronological development of Western painting and sculpture from pre-historic through modern times as related to the cultural setting. Illustrated lectures.

^oTemporary.^{oo}On leave.

339. **Art History II (5).** Pr., AT 338.
An examination of ideas, philosophies common to all periods of art history, and a comparison of periods in terms other than chronological development. Illustrated lectures, readings, drawings, and reports.
342. **Elementary School Art (5).** Lec. 2, Lab. 8. Pr., junior standing.
Materials and methods for the development of art activities in elementary schools; exercises in expressive drawing, painting, design and simple lettering.
355. **Illustration I (5).** Lab. 15. Pr., AT 215.
Basic problems in illustration emphasizing both aesthetic and functional aspects. Drawings and designs for line and halftone reproductions.
361. **Fashion I (5).** Lab. 15. Pr., AT 182, and AT 215.
Drawing the fashion figure, employing basic types of rendering used in fashion advertising.
391. **Visual Design I (5).** Lab. 15. Pr., AT 182, AT 211, and AT 212. Admission only upon recommendation of the Committee on Design.
Fundamentals of graphic design. Historical background of printing types. Analysis and pencil studies of basic type faces. Basic techniques of typographical layout. Basic photography. Preparation of art copy for printing. The trademark. Packaging graphics.
392. **Visual Design II (5).** Lab. 15. Pr., AT 381.
Italic types. Problems combining copy-fitting with basic illustration. Preparation of color-separation art copy. Creative expression with letter forms. Letterpress and photo-offset production. The poster. Packaging graphics.
393. **Visual Design III (5).** Lab. 15. Pr., AT 382.
Script lettering. Planned photographic illustration. Creative design as communication. The trade name. Silkscreen production. Research in pertinent art movements. Packaging graphics.
405. **Printmaking II (5).** Lab. 15. Pr., Admission only upon recommendation of the Committee on Fine Arts.
Intaglio print media. Etching and metal engraving.
406. **Printmaking III (5).** Lab. 15. Pr., Admission only upon recommendation of the Committee on Fine Arts.
Planographic print media. Stone and metal-plate lithography.
422. **Painting V (5).** Lab. 15. Pr., AT 324 and junior standing.
Painting with optional media and subject matter.
423. **Painting VI (5).** Lab. 15. Pr., AT 422 and junior standing.
Fundamental problems of painting figures. Experimenting with various means of interpreting the figure in both abstract and realistic compositions.
431. **Contemporary Art (3).** General Elective.
A survey of modern painting, sculpture and industrial design. Illustrated lectures, readings.
- 432-3. **Seminar in Art Problems (5-5).** Pr., senior standing.
Open to students who have shown ability, initiative, and industry in carrying out individual projects. Research reports, and drawings under supervision on approved topics.
434. **Seminar in Art History Problems (5).** Pr., senior standing.
Open to students who have shown ability, initiative, and industry in carrying out individual projects. Research, reports, and drawings under supervision of approved historical topics.
442. **Art in Education (5).** Lec. 3, Lab. 6. Pr., senior standing.
Lectures, reading and research concerning principles and objectives of pertinent phases of Art for the purpose of understanding their significance in teaching at all levels. Emphasis is placed upon creativity rather than technical skill in laboratory experimentation.
456. **Illustration II (5).** Lab. 15. Pr., AT 355.
Sustained problems in illustration emphasizing both subjective and objective treatments.
462. **Fashion II (5).** Lab. 15. Pr., AT 361.
Problems in advanced rendering for fashion advertising; figured and textured fabrics, furs, and accessories.
463. **Fashion III (5).** Lab. 15. Pr., AT 462.
Design of clothing in all categories; historic adaptations; wardrobe color coordination; personality styling.
481. **Visual Design IV (5).** Lab. 15. Pr., AT 383.
Original student alphabet with application. Research in pertinent art movements. The brochure. Newspaper layout. Television project. Three-dimensional display.
482. **Visual Design V (5).** Lab. 15. Pr., AT 481.
Catalog or booklet design. Related series of layouts. Humor in graphic design. Optional television or illustration projects. Container with related display.

496. Thesis (5). Lab. 15. Pr., senior standing.

A terminal Art project initiated by the student and accompanied by a written analysis and evaluation. Both problems and written matter will be defended orally by the student before a faculty group.

GRADUATE COURSES

605-6-7-8. Graduate Design (5-5-5-5). Lab. 15-15-15-15.

Advanced programs of creative design in the student's elected field.

627. Advanced Sculpture (5). Lab. 15. Pr., AT 327 and graduate standing.

Aspects of sculptural organization: relief and three-dimensional. Emphasis on idea and technical procedure.

641-2-3. Graduate Research in Art Problems I-II-III (5-5-5).

Research on approved topics in the student's special field. Conferences and reports.

699. Research and Thesis. Credit to be arranged. All quarters, Pr., AT 496 or equivalent.

A major art problem consisting of a sustained single project or a logical sequence of shorter projects. The candidate will be required to conceive and execute a work or works exhibiting pronounced creative ability and technical proficiency. Upon recommendation of the major professor, a written essay may be required to accompany the project. All drawings, paintings, and models connected with this work will be retained by the Department of Art.

Aviation Management (AA)

Head Professor Pitts

Associate Professors Robinson and Williams

Assistant Professors Decker and Kiteley

201. Elementary Aeronautics (5).

Introduction to aviation and the basic principles of flight. This course is open to students in all divisions of the University who desire a general and practical knowledge of aviation.

202. Aerospace History (3).

Significant events and accomplishments in man's attempts to move through air and space. Emphasis is placed on activities during the twentieth century.

303. Air Navigation I (5). Lec. 4, Lab. 3. Pr., MH 160.

Construction of maps and charts; dead reckoning and pilotage; solution, application and practice of navigation problems.

304. Meteorology (5). Lec. 4, Lab. 3. Pr., sophomore standing.

An introductory course in Meteorology including a basic understanding of the atmosphere, measurement of meteorological elements and effect of these on the lower atmosphere. Credit may not be earned in both AA 304 and AA 305.

305. Aviation Meteorology (5). Lec. 4, Lab. 3. Pr., PS 206.

A basic study of meteorology and its application to aviation to include computation of data and preparation of weather maps. Weather elements as related to operation of aircraft, computation of data; preparation of weather maps.

306. Private Pilot Training—Flight (3). Lec. 1, Lab. 6.

Dual and solo flight instruction as required for the FAA Private Pilot Certificate. Previous flight experience may be substituted for a part of the above.

307. Air Navigation II (5). Lec. 4, Lab. 3. Pr., AA 303.

Use of navigation instruments and radio aids; celestial navigation; planning of long range flights; practice of problems.

308. Federal Aviation Regulations (3). Pr., sophomore standing.

A study of all regulations concerning airmen, aircraft, air agencies, operation and traffic rules.

309. Aerospace Legislation (3).

Federal, state and local legislation affecting aviation and space activities.

311. Propulsion Fundamentals (5). Pr., PS 206.

Principles of operation, major components and important features of typical propulsion systems used in aircraft and missiles. Includes an introduction to propulsion systems used for spacecraft.

312. Guidance and Control Fundamentals (5). Pr., PS 206.

Basic principles of aircraft and spacecraft guidance and control.

315. Physiology of Flight (3).

Physiological effects resulting from recent developments in flight and how these effects are minimized.

401. **Aeronautical Seminar I (1). Pr., junior standing.**
Special problems and current status of the aircraft and related industries.
402. **Aerospace Vehicle Systems (5). Pr., PS 206.**
Design, use and function of typical hydraulic, mechanical and electrical systems used on aircraft and missiles. Includes an introduction to some of the major systems used in space vehicles.
406. **Commercial Pilot Training—Flight (3). Lab. 9.**
Dual and solo flight instruction as required for the FAA Commercial Pilot Certificate. Previous flight experience may be substituted for a part of the above.
407. **Aircraft Powerplants (5). Pr., junior standing.**
Engine nomenclature and types, cycles of operation, lubrication, fuels, carburetion, ignition and starting systems, engine-propeller performance, introduction to jet propulsion.
416. **Airport Management (5). Pr., junior standing.**
Principles of management; financing the airport; sources of income; establishment of rates for services rendered; problems of equipment and airport maintenance; accounting procedures; legal responsibilities; merchandizing.
417. **Airline Operation (5). Pr., junior standing.**
History of airlines; financial structure and sources of capital of airlines; sales, reservations and space control; dispatching and passenger care; determination of tariffs; personnel relations; research; public relations.
418. **Air Transportation (5). Pr., junior standing.**
Historical development and present status of air transportation facilities; regulation, state and federal; legal characteristics of air transportation industry; problems and services of commercial air transportation.
419. **Air Traffic Control (5). Lec. 4, Lab. 3. Pr., junior standing and AA 307.**
A study of all facilities used in controlling air traffic with special emphasis on control center and control tower operation.
423. **Flight Instructor Training (3). Lec. 1, Lab. 6. Pr., a valid Commercial Pilot Certificate.**
Instruction in the theory, methods and technique of flight training. Sufficient ground and flight instruction is given to qualify for the FAA Flight Instructor Rating.
424. **Instrument Flying (3). Lab. 9. Pr., a valid Private or Commercial Pilot Certificate.**
Ground and flight instruction in the theory and practice of instrument flying.
425. **Aircraft Components (5). Pr., junior standing.**
Design, installation, use, and function of hydraulic, mechanical, and electrical systems and equipment of aircraft.
427. **Multi-Engine Training (3). Lab. 9. Pr., a valid Private or Commercial Pilot Certificate.**
Instruction in the methods and techniques of multi-engine aircraft pilotage. Sufficient ground and flight instruction is given to qualify for the FAA pilot rating of Multi-Engine—Land.

Botany and Plant Pathology (BY)

Professors Lyle, Cairns, D. Davis, and Marshall

Alumni Associate Professor Funderburk

Associate Professors Carter, Clark, Curl, N. Davis, Gudauskas, and Patterson

Assistant Professors T. Davis, Goslin, Koelling, and Shands

Instructor Lee

101. **General Botany (5). Lec. Dem. 5. All quarters.**
Introduction to botany dealing with the development, structure, and function of plants. Precedes all advanced courses in botany.
102. **General Botany (5). Lec. Dem. 5. All quarters. Pr., BY 101.**
Principal natural groups of plants embracing their particular structure, habits, reproduction, and relationships.
205. **Pharmaceutical Botany (5). Lec. 4, Lab. 2. Fall, Winter, Spring.**
A first course in Botany, restricted to Pharmacy students, includes fundamental concepts of plant life. Various plant groups are studied and the general structure, metabolism and growth discussed. Macroscopic and microscopic examination of plant organs is made with observations on particular substances assimilated in plants that are of interest to the pharmaceutical industry.

306. **Fundamentals of Plant Physiology (5).** Lec. 3, Lab. 4. Pr., BY 101, CH 103-104.
General aspects of fundamental life processes of plants involving physiological, structural, and environmental relationships.
308. **Plants and Man (3).** Lec. 3. Summer. General Elective.
Introduction to the botanical characteristics of most categories of plants including their kinship, origin, past and present distribution, and various ways utilized, as timbers, fruits and other foods, fibers, forage, ornamentals, drugs, etc. Local field trips will be made. (Restricted to students who have had no more than 5 hours credit in botany.)
309. **General Plant Pathology (5).** Lec. 3, Lab. 4. Winter, Spring. Pr., BY 101-2.
Nature cause, and control of plant diseases illustrated by studies of the more common diseases of cultivated crops.
310. **Forest Pathology (5).** Lec. 3, Lab. 4. Winter, Spring. Pr., BY 101-2.
Diseases of trees in forests, parks, streets, and nurseries, as well as the more important fungi causing rots of timber and its products.
401. **Biological Statistics (5).** Lec. 4, Lab. 2. Fall, Spring odd years. Pr., MH 122 or MH 160 and junior standing.
Basic concepts of experimental statistics, distributions, confidence limits, tests of significance, analysis of variance, linear correlation and regression. For advanced undergraduates and as a beginning course for graduate students in biological sciences.
406. **Systematic Botany (5).** Lec. 3, Lab. 4. Spring and Summer. Pr., BY 101-2 and junior standing.
Identification and classification of flowering plants. Field trips will be made.
409. **Marine Botany (6).** Lec. 12. Summer. Pr., Ten hours of biology, including introductory botany, or consent of instructor.
Survey, based upon local examples, of the principal groups of marine algae and maritime flowering plants, involving their structure, reproduction, distribution, identification, and ecology. Restricted to participants in the Gulf Coast Research Laboratory Teaching Session.
410. **Aquatic Plants (5).** Lec. and Lab. 4. Summer. Pr., BY 101-2 and junior standing.
Identification and study of those plants found in or associated with the fresh water features of Alabama. Emphasis will be on plants which have particular relationships to wildlife management or fish culture. Field trips will be taken and a plant collection required.
411. **Phycology (5).** Lec. 2, Lab. 6. Spring. Pr., BY 101-2 and junior standing.
The identification, growth, reproduction, distribution, evolution and economic importance of the algae. Field trips will be made.
412. **Principles and Methods in Plant Pathology (5).** Lec. 3, Lab. 4. Winter. Pr., BY 309 or 310 and junior standing.
Principles governing the development of plant diseases and their control. The laboratory will consist of a study of the techniques used in isolation, culture, and inoculation of plant pathogens.
413. **General Plant Ecology (5).** Lec. 3, Lab. 4. Fall and Spring. Pr., BY 306 and junior standing.
Natural vegetation, environment, and interrelationships between the two with primary emphasis on the Southeastern United States. Field trips will be made.
414. **Plant Morphology (5).** Lec. 3, Lab. 4. Winter. Pr., BY 102 and junior standing.
Morphology of the principal plant groups concerning their structure, reproduction, and evolutionary relationships.
415. **Developmental Plant Anatomy (5).** Lec. 3, Lab. 4. Winter. Pr., BY 102 and junior standing.
Comparative anatomy of vascular plants with emphasis on structure and developmental relationships.
416. **Biological Microscopy, Microtechnique, and Photography (5).** Lec. 2, Lab. 6. Pr., permission of instructor.
Various forms of optical microscopy; micromanipulation; micrometry; drawing with the microscope. Microobservation; whole-mounts; dissociation; sectioning by freezing and embedding techniques. Vital, in-situ, smear, squash, and section staining. Macro- and micro-photography with still, cine, and lapse-time equipment. Photographic illustration for publication and lantern slide presentation.
419. **Principles in Plant Disease Control (3).** Lec. Dem. 4. All quarters. Pr., BY 309 and graduate standing.
Designed to acquaint the student with such principles of plant disease control as protection, exclusion, eradication, and resistance. The control of important plant pathogens will be considered by each method. Emphasis will be placed on chemical control with antibiotics, fumigants, and fungicides.

420. **Weed Identification and Control (5).** Lec. 3, Lab. 4. Spring. Pr., BY 101 and junior standing.
Recognition of the more noxious weeds, their ecology, habit of growth, dissemination and the evaluation of the various methods of control.
430. **Plant Nematology (5).** Lec. 2, Lab. 6. Winter. Pr., BY 309, ZY 101 or permission of instructor and junior standing.
Study of the various roles of nematodes in relation to plant diseases caused by the nematodes and other pathogens. Identification of the plant-nematodes; nature of pathogenicity; principles and practices of control; recent advances in phytonematology.
435. **Plant Biology (5).** Lec. 3, Lab. 4. Summer. Pr., Teaching experience and junior standing.
Principles of biology as they apply particularly to the development, anatomy, and physiology of higher plants. Restricted to participants in the NSF Summer Institute of Biology. Will be offered in separate section to other qualified students upon sufficient demand.

GRADUATES ONLY, MAJOR OR MINOR

601. **Biological Statistics II (5).** Lec. 4, Lab. 2. Winter. Pr., BY 401 or equivalent.
Analysis of variance, randomized block, Latin square and split plot designs, factorials, analysis of covariance, and multiple regression.
602. **Least Squares Analysis of Experiments (5).** Lec. 4, Lab. 2. Spring even years. Pr., BY 401 and BY 601 or equivalent.
Analysis and interpretation of experimental data by least squares procedures; general linear models and hypotheses; weighted regression; irregular two-factor design.
604. **Advanced Plant Physiology I (5).** Lec. 3, Lab. 4. Fall. Pr., BY 306 and 10 hours of organic chemistry.
Molecular biology and plant metabolism; a correlation of the fine structures of the cell with metabolic pathways occurring therein.
605. **Advanced Plant Physiology II (5).** Lec. 3, Lab. 4. Winter. Pr., BY 605 or consent of instructor.
Water relations and mineral nutrition. Internal and external factors affecting the absorption, translocation, utilization, and loss of water and mineral elements by green plants.
606. **Advanced Plant Physiology III (5).** Lec. 3, Lab. 4. Spring. Pr., BY 606 or consent of instructor.
Plant growth. A review of literature and laboratory methodology of plant physiological subject matter in the areas of plant growth regulators, mode of action of growth regulators, and factors affecting plant growth.
608. **Advanced Systematic Botany (5).** Lec. 2, Lab. 6. Spring. Pr., BY 406.
Intensive study of special groups of plants.
609. **Mycology (5).** Lec. 2, Lab. 6. Fall. Pr., BY 101-2 and consent of instructor.
Systematic survey of the fungi with aspects of morphology included. Emphasis will be on the economically important fungi.
611. **Ecology and Soil Fungi (5).** Lec. 2, Lab. 6. Fall odd years. Pr., BY 309 or 310, BY 609.
Quantitative and qualitative consideration of the microbial population of the soil. Relation of physical environment, antagonistic microorganisms, and higher plants on growth and survival of soil fungi. Emphasis will be on methodology for studying soil microflora and plant disease relationships.
612. **Physiology and Biochemistry of Fungi (5).** Lec. 3, Lab. 4. Winter. Pr., BY 309, 609 and a minimum of 5 hours of biochemistry.
Biochemical activities of fungi as related to their nutrition, growth, reproduction and fermentive abilities.
613. **Experimental Plant Ecology (5).** Lec. 2, Lab. 6. Pr., BY 413. Summer.
Field course covering the methods of obtaining quantitative data on the structure and composition of plant communities as well as the use of instruments for evaluating the environment.
615. **Morphology of Angiosperm (5).** Summer. Lec. 3, Lab. 4. Pr., BY 414.
Principles of angiosperm reproduction with emphasis on structure and evolution.
616. **Cytology and Cytogenetics (5).** Lec. 3, Lab. 4. Winter. Pr., ZY 300.
Cellular morphology and living processes, with chromosomal structure, function and behavior, and with the relationship of these factors to evolution.
617. **Phytopathology (5).** Lec. 3, Lab. 4. Winter. Pr., BY 309 or 310, VM 495.
To acquaint students with viruses as plant pathogens and the diagnosis and control of diseases caused by them. Laboratory will involve methodology in the transmission, isolation, and characterization of viruses which infect plants.

618. **Clinical Plant Pathology (5).** Lec. and Lab. 8. Summer or Fall. Pr., BY 412 or equivalent or consent of instructor.
Identification, epidemiology, etiology, and control of the major diseases on various kinds of economic plants, to be selected on the basis of current needs of the students. Subject matter to be presented by various specialists within the department.
620. **Chemical Weed Control (5).** Lec. 3, Lab. 4. Fall or Summer, odd years. Pr., BY 306, BY 406 or 420.
Application, mode of action, physiological relationships, recent advances, and special weed problems.
625. **Special Problems. Credit to be arranged.**
A. Cytology; B. Ecology; C. Morphology; D. Mycology; E. Nematology; F. Pathology; G. Physiology; H. Taxonomy; I. Chemical Weed Control; J. Marine Botany; K. General Botany Teaching.
635. **Biological Processes (5).** Lec. 5. Summer. Pr., BY 435, teaching experience, and graduate standing.
Acquaints the secondary school teacher with some of the fundamental life-processes, and illustrates ways in which each of these affects the affairs of man. Restricted to participants in the NSF Summer Institute of Biology but will be offered in a separate section to other qualified students upon sufficient demand.
636. **Microbiology (5).** Lec. 3, Lab. 4. Summer. Pr., teaching experience.
Structure and activities of microorganisms, their distribution and cultivation. The algae, fungi, bacteria, and protozoa are considered particularly as they relate to animal and plant disease, food, industrial uses, sanitation, and immunization. Restricted to participants in the NSF Summer Institute of Biology. Will be offered in separate section for other qualified students upon sufficient demand.
640. **Departmental Forum (1).** Fall, Winter and Spring. Required of all majors, open to all minors.
Discussions concerning current topics in the various sciences and related fields.
641. **Seminar in Plant Physiology (1).** Fall, Winter, and Spring. May be taken more than once for credit.
650. **Nuclear Science in Agriculture (5).** Lec. 3, Lab. 6. Spring. Pr., graduate standing with research experience.
Role of nuclear science in agricultural research with training in the use of radioisotopes and familiarization with the possibilities, limitations, and necessary safety precautions.
699. **Research and Thesis. Credit to be arranged.** May be taken more than one quarter.
799. **Doctoral Research and Dissertation. Credit to be arranged.**

Building Technology (BT)

Head Professor Orr

Professor Marty

Assistant Professors Darden, and Dean

104. **Introduction to Building (6).** Lec. 2, Lab. 12.
Survey of the building industry; building procedures; study of plans and details; use of drawing tools; elements of estimating. Lectures, readings, drawings.
105. **Drawing and Projections (6).** Lec. 2, Lab. 12.
Application of geometry to orthographic, isometric, cavalier, cabinet, and perspective projections. Exercises in working drawings.
106. **Materials and Construction (5).** Pr., BT 104.
Structural and finish materials and assembly systems used in buildings. Lectures, reports, readings, drawings.
220. **Mechanics of Structures (5).** Pr., PS 205, MH 263.
Principles of mechanics as applied to building construction, graphic statics; resolution of external forces; analysis of trusses; centroids; moments of inertia; friction. Lectures, demonstrations, problems.
- 311-2-3. **Structures I-II-III (3-3-3).** Pr., BT 220.
Study of statically determinate structures including beams, columns, trusses, struts and tension members. Shear and bending moments, torsion, slope and deflection. Problems are worked in wood, reinforced concrete, steel and other structural materials. Lectures, research and problems.
321. **Construction Problems I (5).** Lab. 15.
Solution of practical problems of the type normally encountered in the erection of buildings. Layouts, design of formwork and scaffolding. Material storage and handling. Job organization. Demonstrations, research and drawings.

367-8-9. History of Building I-II-III (3-3-3). Pr., BT 106.

An analysis of the development and use of construction methods and materials showing the effects of this development on building form from ancient to contemporary times. Illustrated lectures, readings, reports and drawings.

411-2-3. Structures IV-V-VI (3-3-3). Pr., BT 313.

Continuation of Structures I-II-III in the field of statically indeterminate structures. Consideration of lateral stability in buildings. Design of foundations. Lecture, research and problems.

422. Construction Problems II (5). Lab. 15. Pr., BT 312 and 321.

Continuation of BT 321; solution of problems taken from working drawings, specifications, shop drawings and contract documents. Discussions, research, estimates, computations, drawings.

433-4. Construction Methods and Estimating I-II (5-5). Pr., BT 106 and 312.

Material quantities; estimating; builder's organization and procedure; job records; builder's liability; labor relations; safety precautions; critical path analysis; project management. Preparation of quantity lists from working drawings; lectures, problems.

452-3. Building Equipment I-II (3-3). Pr., PS 206.

Description and analysis of heating, air conditioning, water supply, plumbing, electrical wiring, motors, elevators, and illumination as related to buildings. Lectures, demonstrations, readings, problems.

490. Building Construction Thesis (7). Lab. 21. Pr., BT 422, 434 and 4th year standing, third quarter. Admission only upon recommendation of the Faculty Thesis Committee.

Preparation of detailed cost estimates and construction program of a building, selected with departmental approval; report to include description of building and site, list of quantities of materials, unit prices of materials and labor, detailed cost sheets; bid and contract forms, construction schedule, and methods required. (Candidate will defend thesis orally before staff and guest specialists.)

521-2-3. Advanced Structures I-II-III (5-5-5). Pr., BT 413.

Theory and practical design of complex and long span structures, both in steel and reinforced concrete. Multiple story buildings, towers, arches, vaults, domes, thin shell systems, foundations. Lectures, research and problems.

541. Building Equipment III (2). Lab. 6. Pr., BT 453 and AR 403.

A continuation of Building Equipment I and II in selected laboratory problems.

GRADUATE COURSES**605-6-7. Graduate Research in Building (5-5-5). All quarters.**

Independent investigation and reports on topics selected by the student with approval of the instructor.

621-2-3. Graduate Construction Design (5-5-5). Lab. 15-15-15. All quarters. Pr., BT 523.

The analysis and solution of complex problems in construction design, with particular emphasis upon practical and economical application to a selected building. Conferences, working drawings, scale models.

699. Research and Thesis. Credit to be arranged. May be taken more than one quarter.

The analysis and solution of an advanced problem in building. The choice, scope and program of study for the problem must be submitted by the candidate for approval of the department staff during the first week of the quarter.

Chemical Engineering (CN)

*Professors Wingard, and Hsu**

Associate Professors Moore, Hirth, and Vives

*Assistant Professor Taylor**

*Instructor Hammett***

101. Chemical Engineering Fundamentals I (1). Lab. 3.

A work shop in the use of the slide rule, blue print reading, lettering, graphs and graphing, and interconversion of units.

200. Digital Computers (2). Lec. 1, Lab. 3.

Workshop on digital computer programming in the area of chemical engineering.

201. Chemical Engineering Fundamentals II (3). Pr., MH 161, PS 201.

Introduction to chemical engineering and process calculations. Includes problems relating to the behavior of ideal gases, humidity and material balances.

* One-third time Engineering Experiment Station.

** Temporary.

202. **Chemical Engineering Fundamentals II (5).**
The material covered in this course comprises that covered in CN 201 and CN 300. The course is open only to junior college transfer students.
300. **Process Calculations I (3). Pr., CN 201.**
Continuation of CN 201. Includes problems relating to the thermophysics, thermochemistry, and more comprehensive problems in fuels, combustion, and chemical metallurgical and petroleum processes.
301. **Process Calculations II (3). Pr., CN 300.**
Calculations involving fuel, combustion, chemical, metallurgical, and petroleum processes, and basic thermodynamic properties and relationships.
322. **Chemical Process Industries (4). Pr., CH 304.**
A study of major inorganic and organic chemical process industries including raw materials, processing methods, and markets.
324. **Fluid Mechanics (4). Pr., MH 264, PS 203.**
Fluid mechanics, including resistance of immersed bodies and friction in flow through beds of solids.
326. **Heat Transfer (3). Pr., CN 324.**
Principles of heat transfer, including conduction, convection, and radiation. Heat transfer equipment design methods. Evaporation as a unit operation.
- 326L. **Heat Transfer Laboratory (2). Lab. 6. Coreq., CN 326.**
Laboratory experiments in fluid flow, heat transfer and evaporation.
401. **Chemical Engineering Economics (2). Pr., junior standing.**
A study of the economic factors affecting the design, operation, and income of industrial chemical processing, including cost estimation and feasibility studies.
402. **Heat Transfer for Metallurgical Engineers (5). Lec. 5. Pr., MH 361, PS 202.**
Thermal measurements, steady and unsteady state conduction, radiation, furnace design.
423. **Unit Operations (3). Pr., CN 326.**
Theory and mechanisms of diffusion, humidification and dehumidification, drying, size reduction, filtration and materials handling.
- 423L. **Unit Operations Laboratory (2). Lab. 6. Coreq., CN 423.**
Laboratory experiments in drying, air conditioning operations, filtration, crushing, grinding and size separation.
424. **Mass Transfer (3). Pr., CN 423.**
Theory and mechanisms of distillation, absorption and extraction.
- 424L. **Mass Transfer Laboratory (2). Lab. 6. Coreq., CN 424.**
Laboratory experiments in distillation, absorption and extraction.
426. **Engineering Metallurgy (5). Lec. 4, Lab. 3. Pr., CH 408 and senior standing.**
Internal structure of solid state metals as related to physical properties, effect of mechanical work and heat. Theory of alloys with emphasis on production, working and heat treatment of steels and certain non-ferrous alloys.
427. **Extractive Metallurgy (5). Pr., CH 206 and junior standing.**
A study of the recovery of the most important metals from their ores, refining and correlation of purity with commercial uses. Included will be processes in the fields of hydro-, electro-, and pyrometallurgy along with such subtopics as ore beneficiation, electrolytic equipment, furnaces and pyrometry.
430. **Computer Principles (2). Pr., MH 361.**
Study of the basic principles of analog and digital computer theory, and applications to chemical engineering.
431. **Computer Applications (2). Lec. 1, Lab. 3. Pr., CN 430, CN 424, CN 490.**
Solution of engineering problems on the digital computer. Required a working knowledge of computer programming.
432. **Instrumentation and Control (4). Lec. 3, Lab. 3. Pr., MH 361, PS 203, senior standing.**
Principles of automatic feedback control, process dynamics, selection of instrumentation and determination of control settings.
437. **Process Engineering (4). Lec. 2, Lab. 6. Pr., senior standing and CN 322. Coreq., CN 424.**
Semi-independent work of individuals and small groups. The subject matter relates to the study of the scientific literature, laboratory operations designed to develop a satisfactory process, and pilot plant development and operation; including cost analyses, a market study, and the writing of reports. Principles of report writing are stressed.
440. **Nuclear Engineering (5). Pr., senior standing in science or engineering and B average except by special permission.**
Atomic physics and nuclear reactions. Nuclear reactor principles, design, and engineering including radiation, shielding, instrumentation, and heat transfer.

484. **Chemical Engineering Plant Design (4).** Lec. 2, Lab. 6. Pr., CN 437 and senior standing.
The major responsibility is placed upon individuals or small groups for the optimum design, choosing between alternates, selection of equipment, and the calculation of the required sizes, plant layout, cost analyses and the writing of reports. Comprehensive problems are assigned which usually include heat, materials and economic balances, unit operations and processes, kinetics, and thermodynamics. Some consideration also is given to statistics.
490. **Applied Thermodynamics (5).** Pr., senior standing, CN 301.
Thermodynamic properties of fluids, the expansion and compression of fluids, the thermodynamics of solution, physical equilibrium and chemical equilibrium, and important applications to chemical engineering.
491. **Kinetics (4).** Pr., senior standing, CN 490.
A study of the rates of homogeneous, heterogeneous, and catalytic reactions, and applications of the rates to the organic process industries.

COURSES PRIMARILY FOR GRADUATE STUDENTS

601. **Transport Phenomena I (5).** Pr., CN 423, CN 424 or equivalent.
Momentum and energy transport, mechanisms of viscosity and thermal conductivity, velocity and temperature distribution in laminar and turbulent flow, equations of change, interphase transport, macroscopic balances.
602. **Transport Phenomena II (5).** Pr., CN 601.
A continuation of CN 601.
603. **Transport Phenomena III (5).** Pr., CN 602.
Mass transport, mechanism of diffusivity, concentration distribution in solids, laminar and turbulent flow, multi-component systems.
604. **Chemical Engineering Thermodynamics I (5).** Pr., CN 490 or equivalent.
Emphasis on properties of actual gases, energy functions and engineering applications, molecular theory of fluids, complex non-ideal systems.
605. **Chemical Engineering Thermodynamics II (5).** Pr., CN 604.
Emphasis on physical and chemical equilibria for complex systems statistical treatment of thermodynamic relations, non-equilibrium thermodynamics.
606. **Chemical Engineering Kinetics I (5).** Pr., CN 491 or equivalent.
Analysis of complex chemical reactions, reaction mechanisms, homogenous and heterogeneous catalysis, effect of various physical factors, reaction scale-up, industrial reactors.
609. **Petroleum Refining Engineering (5).** Pr., CH 304, CN 424 or equivalent.
Composition of petroleum, evaluation of oil stocks, refinery processes, design of refinery equipment, corrosion problems, treatment of petroleum products, petrochemicals, economic aspects of petroleum industry.
610. **Advanced Physical Metallurgy (5).** Lec. 4, Lab. 3. Pr., CN 426.
Heat treatment of ferrous and non-ferrous metals including microscopic studies. Recent developments also are included. This course is open by special permission to seniors who have credit for CN 426.
611. **Advanced Kinetics and Principles of Reactor Design (5).** Pr., CN 605.
612. **Process Dynamics and Control I (5).** CN 432 or equivalent.
Control responses, applications of Laplace transforms, control system design, frequency response, distributed parameters, linearizing procedure.
613. **Process Dynamics and Control II (5).** Pr., CN 612.
Analysis of process dynamics stability analysis, optimizing control, data handling, digital computer control.
614. **Heat Transmission I (5).** Pr., graduate standing.
Dynamics of chemical engineering processes and operations, such as reactors, heat exchangers, flow-storage systems, and diffusional operations. This course deals primarily with the mathematical study of automated systems and some of the aspects of computer control.
615. **Heat Transmission II (5).** Pr., graduate standing.
Boiling heat transfer, condensing vapor, natural convection, extended surfaces, radiation heat transfer, packed bed, exchanger design analysis.
631. **High Polymer Science and Technology (5).** Pr., CH 304, CN 424 or equivalent.
Structure of polymers, molecular forces and properties, polymer formation and modification, kinetics of polymerization, rheology of polymers, specific polymers such as fibers, rubbers, coatings, and adhesives, fabrication method.
650. **Special Topics and Chemical Engineering (credit TBA).**
Special topics covering in depth scientific industries or types of unit processed may be given as directed reading, lectures or a combination of both. Maximum total credit 5 hours.
670. **Seminar (1).** Pr., graduate standing.
May be taken from one to five quarters for credit.
699. **Research and Thesis.** Credit to be arranged.

Chemistry (CH)

Professors Baker, Capps, Kosolapoff, Land, Melius, Nichols, Price, Saunders, Schrader, Stevens, and Ward
Associate Professors Barksdale, Dinius, Peterson, and Ziegler
Assistant Professors Mountcastle, Neely, and Teggin

Credit in CH 103-4-5 and CH 206 toward a degree is subject to completion of the corresponding laboratory course, i.e., 103L, 104L, 105L, and 206L. Students not qualified to take CH 103 are required to complete CH 102 before taking CH 103.

102. Introductory College Chemistry (3). Each quarter. Pr., MH 107. Coreq. MH 121 or MH 160 and departmental approval.
An introductory course in chemistry.
- 103-4. General Chemistry (4-4). Each quarter. Pr., for CH 103, MH 107 or coreq. MH 121 or MH 160 and departmental approval. (CH 103 Pr., for CH 104.)
A comprehensive course for non-chemistry majors embracing a detailed study of the fundamental principles and concepts of chemistry.
- 103L-104L. General Chemistry Laboratory (1-1). Lab. 3.
These courses must be taken concurrently with the corresponding lecture course.
105. General Chemistry (3). A continuation of CH 104.
For non-chemistry majors devoted to a study of the chemistry of the elements according to the analytical groups. Special emphasis will be placed on the principles of ionic equilibria, solubility product, and related phenomena and their use for the separation and identification of the group constituents.
- 105L. General Chemistry Laboratory (2). Lab. 6.
Laboratory work will cover qualitative analysis. Must be taken concurrently with the corresponding lecture course.
111. General Chemistry (5). Lec. 4, Lab. 3. Pr., MH 107 or Coreq., MH 160, or MH 121.
Designed for chemistry majors and others in closely related areas.
112. General Chemistry (5). Lec. 4, Lab. 3. Pr., CH 111 or CH 103.
Continuation of CH 111.
113. General Chemistry (5). Lec. 3, Lab. 6. Pr., CH 104 or CH 112.
Continuation of CH 112. Laboratory work covers qualitative analysis.
203. Organic Chemistry (5). Pr., CH 104.
Fundamentals of organic chemistry. Designed for students in Home Economics, and others.
204. Analytical Chemistry (5). Lec. 3, Lab. 6. Pr., CH 113.
Fundamental concepts used in analytical chemistry and observed in the laboratory via volumetric techniques.
205. Analytical Chemistry (5). Lec. 3, Lab. 6. Pr., CH 204.
Fundamental concepts used in analytical chemistry and observed in the laboratory via gravimetric analysis and separation techniques.
206. Quantitative Analysis (3). Lec. 3. Each quarter. Pr., CH 105 and CH 105L.
Embraces theory and application of gravimetric, volumetric and colorimetric chemical analysis.
- 206L. Quantitative Analysis Laboratory (2). Lab. 8. Each quarter. Pr., or Coreq. CH 206.
Analytical techniques applied to the analysis of ores and minerals.
207. Organic Chemistry (5). Lec. 4, Lab. 3. Each quarter. Pr., CH 104.
This course together with CH 208, is designed to meet the needs of students in Laboratory Technology, Pre-Medicine, Pre-Dentistry, Pre-Veterinary, Pharmacy and students in other Biological Sciences.
208. Organic Chemistry (5). Lec. 3, Lab. 6. Each quarter. Pr., CH 207.
Continuation of CH 207.
301. Biochemistry (5). Lec. 4, Lab. 3. Pr., CH 208.
Especially designed for students in Pre-Medicine and Pharmacy.
303. Organic Chemistry (5). Lec. 4, Lab. 3. Pr., CH 113.
Organic chemistry covering nomenclature, group reactions, important theories and concepts relating to aliphatic and aromatic compounds, designed primarily for chemistry majors.
304. Organic Chemistry (5). Lec. 3, Lab. 6. Pr., CH 303.
Continuation of extension of CH 303.
305. Organic Chemistry (5). Lec. 3, Lab. 6. Pr., CH 304.
Continuation and extension of CH 303-304, including heterocyclic compounds and many classes of compounds of interest in the field of biochemistry.

316. Physical Chemistry (5). Pr., MH 112, CH 105 and PS 205.
A one-quarter course for pre-medicine students.
342. Geology (3). General elective. Pr., CH 104 and sophomore standing.
401. Chemistry for High School Science Teachers (5). Lec. 4, Lab. 3. Summer. Pr., teaching experience.
404. Organic Analysis (Qualitative) (5). Lec. 3, Lab. 6. Pr., CH 305 or equivalent and junior standing.
After performing identification tests on known compounds, the student identifies pure organic unknowns, and separates and identifies the components of mixtures. Students earning graduate credit will identify more unknowns than required of undergraduates.
407. Physical Chemistry (5). Lec. 4, Lab. 3. Pr., MH 264, CH 205 or CH 206, PS 203, and junior standing.
Embraces a discussion of the more important theories and laws of physical chemistry.
408. Physical Chemistry (5). Lec. 4, Lab. 3. Pr., CH 407, and junior standing.
Continuation of CH 407.
409. Physical Chemistry (5). Lec. 4, Lab. 3. Pr., CH 408, and junior standing.
Extension of principles studied in CH 407-8 with special reference to electro-chemistry.
410. Intermediate Inorganic Chemistry I (5). Lec. 5. Pr., CH 408 and junior standing.
Atomic structures, valence bonding and periodic properties of the elements.
411. Intermediate Inorganic Chemistry (5). Lec. 3, Lab. 6. Pr., CH 410 and junior standing.
Deals with the synthesis and purification of typical inorganic compounds.
412. Chemical Thermodynamics (5). Pr., CH 408, and junior standing.
Basic laws governing changes in energy in gases, liquids and solids.
413. Analytical Chemistry (5). Lec. 3, Lab. 6. Pr., CH 409, and junior standing.
Fundamental concepts used in instrumental analytical chemistry and as observed in the laboratory via spectrophotometric, electroanalytical and chromatographic techniques.
- 418-19-20. Biochemistry (5-5-5). Lec. 4, Lab. 3. Pr., CH 206, CH 208, and junior standing.
A standard year-course in the principles of biochemistry.

GRADUATE COURSES

601. Selected Topics in Chemistry (5). Lec. 4, Lab. 3. Summer. Pr., CH 401 or its equivalent.
Modern topics in general chemistry and a short review of organic chemistry.
610. Advanced Inorganic Chemistry (5). Spring quarter. Pr., CH 410 or equivalent.
Selected groups of inorganic compounds considered from a modern physicochemical viewpoint emphasizing their chemical and physical properties, rates of conversion one into another, molecular structure and valence relationships. Considers primarily compounds of the non-metallic elements.
611. Advanced Inorganic Chemistry (5). Winter quarter. Pr., CH 410 or equivalent.
The same type of treatment as given in CH 610, but considering mainly compounds of metallic elements.
612. Inorganic Preparations (5). Summer quarter, even years. Pr., CH 610 or CH 611.
The preparation of typical inorganic compounds illustrating special and more advanced techniques.
614. The Chemistry of Coordination Compounds (5). Spring quarter, even years. Pr., CH 410 or equivalent.
A study of complex inorganic compounds with emphasis on early and modern developments, isomerism, chelation and methods of determining formation constants.
616. Inorganic Reaction Mechanisms (5). Spring quarter, odd years. Pr., CH 410 or equivalent.
A study of the factors affecting the rates of inorganic reactions in solution.
- 620-21. Organic Chemistry (5-5). CH 620 in Fall quarter and CH 621 in Winter quarter. Pr., CH 305 or equivalent.
622. Quantitative Organic Analysis (5). Lec. 2, Lab. 6. Spring quarter, even years. Pr., CH 621 or equivalent.
General methods for the quantitative determination of elements and functional groups in organic compounds.

623. **Heterocyclic Compounds (5).** Summer quarter, even years. Pr., CH 621 or equivalent.
Organic compounds containing heterocyclic ring systems.
624. **Element-Organic Compounds (5).** Fall quarter, odd years. Pr., CH 621 or equivalent.
Organic chemistry of Groups III, IV and V elements.
625. **Organic Nitrogen Compounds (5).** Fall quarter, even years. Pr., CH 621 or equivalent.
Organic compounds containing nitrogen.
626. **Polymers (5).** Spring quarter, odd years. Pr., CH 621 or equivalent.
Polymeric substances and some of their practical applications.
627. **Special Topics in Organic Chemistry (5).** Summer quarter, odd years. Pr., CH 621 or equivalent.
A selection of modern topics in organic chemistry.
- 630-31. **Advanced Physical Chemistry (5-5).** Fall quarter for CH 630 and Winter quarter for CH 631. Pr., CH 409 and CH 630. Pr., for CH 631.
Topics generally considered include kinetic theory of matter, modern theories of the structure of matter, generalized thermodynamics, relation of molecular structure to spectroscopic and thermodynamic properties, and kinetics of chemical reactions.
632. **Relation Between Structure and Properties of Chemical Substances (5).** Fall quarter, even years. Pr., CH 631.
Considers the established relationships that exist between structures of organic and inorganic compounds and physical properties which are relatively easy to determine. The principal aim is the demonstration of the fundamental relation of structure of compounds and electronic configurations.
633. **Chemical Kinetics (5).** Fall quarter, odd years. Pr., CH 631.
The mathematics and characterization of chemically reacting systems include discussions of the collision theory, the transition state theory, unimolecular reactions in condensed phases, behavior of nonstationary-state systems, and photochemistry.
634. **Heterogeneous Equilibria (5).** Spring quarter, even years. Pr., CH 631.
A study of chemical and physical equilibria in heterogeneous systems.
636. **Statistical Thermodynamics (5).** Winter quarter, even years. Pr., CH 631.
Statistical approach to thermodynamics and chemical equilibrium.
637. **Introduction to Quantum Chemistry (5).** Winter quarter, odd years. Pr., CH 631.
Quantum theory as applied to chemical problems.
638. **Molecular Spectroscopy (5).** Spring quarter, odd years. Pr., CH 631.
Theory and Application of Optical and Magnetic Resonance Spectroscopy.
640. **Carbohydrates (5).** Winter quarter, even years. Pr., CH 418 or its equivalent.
The chemistry of the mono- and polysaccharides.
641. **Amino Acids and Proteins (5).** Fall quarter, odd years. Pr., CH 418 or its equivalent.
Chemistry of the amino acids and proteins.
642. **Lipids (5).** Summer quarter, even years. Pr., CH 418 or its equivalent.
Chemistry of the lipids and their biological significance.
643. **Enzymes (5).** Fall quarter, even years. Pr., CH 419 or its equivalent.
Physical and chemical properties and mechanism of action of enzymes and their role in metabolic reaction.
644. **Intermediate Metabolism (5).** Winter quarter, odd years. Pr., CH 419 or its equivalent.
Detailed study of the metabolism of the carbohydrates, lipids, and amino acids.
645. **Biochemical Research Techniques (5).** Lec. 2, Lab. 6. Summer quarter, odd years. Pr., CH 420 or its equivalent.
Laboratory course designed to acquaint the graduate students in chemistry, biochemistry and the biological sciences with the modern techniques used in biochemistry.
650. **Analytical Chemistry (5).** Lec. 2, Lab. 8. Fall quarter. Pr., CH 409.
Analytical application of physical-chemical measurements concerned primarily with electrical properties.
651. **Analytical Chemistry (5).** Lec. 4, Lab. 3. Spring quarter. Pr., CH 409.
Analytical application of chemical spectroscopy. Applying techniques of ultra-violet, visible infra-red, etc., and absorption analysis.
652. **Theories and Current Topics of Analytical Chemistry (5).** Winter quarter, odd years. Pr. CH 651.

653. **Physio-chemical Separations (5).** Lec. 4, Lab. 3. Spring quarter, even years. Pr., CH 409.
654. **Radiochemical Analysis (5).** Lec. 3, Lab. 6. Summer quarter, odd years. Pr., CH 205.
The application of radioactive tracers and related techniques to chemical analysis.
670. **Seminar (1).** (Total credit not to exceed 10 hours.) Each quarter except Summer.
Required course for all graduate students in chemistry.
699. **Research and Thesis.** Credit to be arranged. May be taken more than one quarter.
799. **Doctoral Research and Dissertation.** Credit to be arranged.

Civil Engineering (CE)

Head Professor Sawyer

Professors Bransford, Hudson, and Popovics

Associate Professors Blakney, Leigh, and Metz

Assistant Professors Judkins, and Peterson

Instructor Ramey

201. **Surveying I (5).** Lec. 3, Lab. 6. Pr., MH 160 or 161 and EG 102 or equivalent. Measurement of distances, elevations and angles; analysis of errors; adjustment of instruments; computation of positions, areas and volumes; contours; establishing grades; topographic mapping and land surveying.
203. **Surveying II (4).** Lec. 3, Lab. 3. Pr., CE 201, MH 264.
Laying out simple curves, compound curves, spirals and vertical curves; astronomic observations; special topics in excavation and embankment.
210. **Engineering Surveying (3).** Lec. 2, Lab. 3. Pr., MH 160 or 161.
Use of tapes, transits and levels; computations of positions, areas and volumes; grades; mapping; contours. For non-Civil Engineering students.
303. **Structural Materials Testing (3).** Lec. 2, Lab. 3. Pr., ME 208.
Physical behavior of structural materials. Use of strain gages. Testing of structural members under axial loads and in flexure.
304. **Theory of Structures I (5).** Pr., ME 208.
Stress analysis of statically determinate structures; reactions, shears, moments, and influence lines. Influence tables.
305. **Water Supply and Disposal Systems (5).** Lec. 4, Lab. 3. Pr., CE 309.
Theory and design of water collection and distribution facilities and waste-water collection systems. Laboratory includes fundamental tests relating to both water supply and waste-water treatment. Emphasis placed on theory and significance of the tests.
308. **Hydraulics I (3).** Pr., ME 307.
Fundamentals, definitions and fluid properties; Fluid statics; Ideal fluid flow concepts and basic equations; Dimensional Analysis and Similitude.
309. **Hydraulics II (3).** Lec. 2, Lab. 3. Pr., CE 308.
Real fluids; Fluid resistance; Fluid measurement and control; Steady pipe flow; steady open channel flow; unsteady flow. Emphasis on steady pipe and open channel flow.
314. **Photogeology for Engineers (5).** Lec. 4, Lab. 3. Pr., CH 104, CE 201.
Photographic materials and nomenclature; petrology; physical geology; use of aerial photography in interpretation of culture, petrology, structural geology, geomorphology and hydrology for resource development.
320. **Highway Engineering I (5).** Pr., CE 203.
Development of highways; plans and surveys; geometric design; traffic capacity; traffic control; and drainage.
380. **Theory of Structures II (5).** Pr., CE 304, junior standing.
Stress analysis of statically indeterminate structures. Slope and deflection. Moment area, conjugate structure, consistent deflection, slope deflection, moment distribution. Influence lines.
400. **Higher Surveying (5).** Lec. 4, Lab. 3. Pr., CE 203, junior standing.
Photogrammetry, map projections, electronic and special instruments, selected geodetic topics.
402. **Statically Indeterminate Structures (5).** Pr., CE 380, senior standing.
Special topics in moment distribution; continuous and internally indeterminate trusses; beams on elastic supports.

404. Reinforced Concrete (5). Lec. 4, Lab. 3. Pr., CE 380, senior standing.
Working stress and ultimate strength approaches to the design of beams, slabs and columns; building codes.
405. Water and Waste-Water Treatment (5). Lec. 4, Lab. 3. Pr., CE 305, junior standing.
Theory, design, construction, and operation of water treatment and waste-water disposal facilities considered on a unit operations basis.
407. Municipal Engineering I (3). Pr., Senior standing.
Duties and responsibilities of city engineer and municipal consultant; problems connected with promoting, financing, designing, and constructing municipal improvements.
408. Engineering Foundations (3). Pr., CE 404, CE 418, CE 314, senior standing.
Application of geology, soil mechanics, and structural theory to the design of foundations such as footings, piles, pile groups, retaining walls, abutments, and bridge piers. Review reports on current articles in technical publications.
409. Environmental Health Engineering (5). Pr., senior standing.
Application of engineering methodology to communicable disease control, insect and rodent control, milk and food sanitation, institutional and housing hygiene, swimming pool sanitation, rural sanitation, industrial hygiene, refuse collection and disposal, radiological sanitation, and air pollution.
410. Highway Engineering II (5). Pr., CE 320.
Contracts and specifications; supervision of construction; structural design of roadway section; construction procedures and maintenance.
411. Flow in Open Channels (5). Lec. 5. Pr., CE 309 or ME 325, junior standing.
Uniform flow, rapidly varied flow, gradually varied flow, subcritical transitions, surges, supercritical transitions, bends, precipitous slopes, energy dissipation, spillways, and oscillatory waves.
412. Hydrology (5). Lec. 5. Pr., CE 309 or ME 325, junior standing.
Precipitation, runoff, flood routing, flood control, river regulation, and coastal engineering problems.
413. Hydraulic Structures (5). Lec. 5. Pr., CE 309 or ME 325, senior standing.
Dams, spillway, outlet works, gate structures, locks, structures for river regulation, canals, structures for shore protection, port facilities.
414. Structural Design I (4). Lec. 3, Lab. 3. Pr., CE 380, junior standing.
The structural design of metal and timber members for flexure, shear, tension, compression and combined effects. Design of trusses, frameworks and connections.
415. Construction Planning (5). Lec. 4, Lab. 3. Pr., junior standing.
Construction methods; estimates of materials and costs; critical path scheduling, and reports.
416. Prestressed Concrete Design (3). Pr., CE 404, senior standing.
The principles and practice of prestressed concrete; design of pre- and post-tensioned beams for flexure and diagonal tension. Special topics.
417. Structural Design II (5). Lec. 4, Lab. 3. Pr., consent of the instructor and senior standing.
Design studies in selected topics such as continuous trusses, rigid frames, multistory frames, and arches.
418. Soil Mechanics (5). Lec. 4, Lab. 3. Pr., ME 208, junior standing.
Engineering properties of soils; soil surveys and sampling; stability; laboratory analysis and tests.
419. Municipal Engineering II (3). Lec. 2, Lab. 3. Pr., senior standing.
Engineering problems of municipal transportation, communications, water supply, sewerage, streets, schools, shopping, parking, and recreation facilities.
420. Sanitary Engineering Laboratory (5). Lec. 4, Lab. 3. Corequisite, CE 405, junior standing.
Studies of the physical, chemical, and biological aspects of environmental engineering; laboratory testing procedures and experiments relating to the treatment of waters and wastes; interpretation of routine plant control analyses and indices of pollution.
421. Water Resources Engineering (5). Lec. 5. Pr., CE 309, senior standing.
Environmental significance; hydrologic factors; water laws; water uses; nature, sources and abatement of pollution; quantity control measures, planning.
422. Senior Seminar (1). Pr., senior standing in Civil Engineering.
Report on current civil engineering literature; discussion and engineering developments; engineering organizations, publications and activity; special speakers.

GRADUATE COURSES

600. Bituminous and Concrete Mix Design (5). Lec. 3, Lab. 6. Pr., CE 603.
Methods of design of bituminous and concrete mixes, with practice in job and laboratory control tests of aggregates and mixes.

601. **Subgrade Stabilization (5).** Lec. 3, Lab. 6. Pr., CE 418.
Studies of factors involved in stabilization with practice in laboratory and job control tests.
602. **Advanced Soil Mechanics (5).** Lec. 3, Lab. 6. Pr., CE 418.
Earth pressure theories; stability computations; seepage computations; consolidation; footing, raft, pile and pier foundation; shearing strengths.
603. **Mechanical Properties of Concrete (5).** Lec. 3, Lab. 6. Pr., CE 303.
Fresh concrete: workability, consistency, composition, unitweight, segregation, bleeding. Hardened concrete: various strengths, deformations under load, time-dependent deformation, etc. Effects on these properties. Test methods. Relations between the composition and mechanical properties of concrete.
610. **Similitude (5).** Lec. 4, Lab. 3. Pr., CE 309 or ME 325.
Principles of dimensional analysis and similitude, use of models, distorted models, and analogies.
612. **Hydrodynamics (5).** Lec. 5. Pr., CE 309 or ME 325 and MH 361.
Equations of motion for nonviscous liquids, force potentials, velocity potentials, conformal mapping, circulation, vortices, equations of motion for viscous liquids, boundary layers, drag, turbulence, and wave motion.
613. **Flow of Fluids in Pipes (5).** Pr., CE 309 or ME 325.
Viscous and turbulent flow of liquids, effects of compressibility, pressure waves, secondary flows, control devices, measuring devices.
620. **Advanced Water and Waste-Water Treatment (5).** Pr., consent of instructor.
An advanced study of the principles utilized in water and sewage treatment processes and environmental health engineering practice.
621. **Advanced Design of Water Supply and Disposal Systems (5).** Lec. 3, Lab. 6. Pr., consent of instructor.
Problems in the layout and design of water, sewage, or industrial waste systems and treatment plants.
622. **Advanced Environmental Engineering Practice (5).** Lec. 3, Lab. 6. Pr., consent of instructor.
Advanced laboratory problems and field exercises in the application of sanitary examination of water, milk, food, wastes, and air; stream pollution and industrial waste surveys.
623. **Industrial Waste Treatment (5).** Pr., consent of instructor.
Industrial waste problems, including the characteristics of individual industries, effects on streams, and methods of treatment and disposal; treatment and disposal of radioactive wastes.
630. **Advanced Stress Analysis (5).** Lec. 4, Lab. 3. Pr., consent of instructor.
Buckling of structures, analysis of elastic and plastic stability, torsion, secondary stresses, arches, theory of limit design.
631. **Special Topics in Structural Design (5).** Lec. 4, Lab. 3. Pr., CE 630.
Design problems related to continuous frames and trusses; economical proportions, analysis and design of connections.
632. **Experimental Stress Analysis (5).** Lec. 3, Lab. 6. Pr., consent of instructor.
Basic theory and laboratory techniques for experimental stress analysis; measurement of strain by mechanical and electrical gages; brittle lacquer, and photogrid; two dimensional photoelasticity; membrane analogies; treatment of errors. Term paper required, except for undergraduates permitted to enroll in course.
633. **Elasticity (5).** Pr., consent of instructor.
Plane stress and plane strain; differential equations of equilibrium; equations of compatibility, two-dimensional problems in rectangular and polar coordinates; strain-energy methods; analysis of stress and strain in three dimensions, torsion of circular and non-circular cross-section; bending of prismatical bars; stress evaluation from strain measurements.
634. **Advanced Reinforced Concrete (5).** Lec. 5. Pr., CE 404.
Effect of shrinkage, plastic flow and deflection on concrete design. Plastic and ultimate strength theories of design. Fundamentals of prestressed concrete.
635. **Numerical Techniques in Structural Analysis (5).** Lec. 5. Pr., consent of instructor.
Approximate methods of analysis for structural members of variable section; stiffness factors; stability; vibrations; elastic foundations, beam-columns.
636. **Topics in Structural Dynamics (5).** Lec. 5. Pr., consent of instructor.
Vibration theory. Analytical and numerical methods for computing the dynamic response of structural systems. Blast loads; earthquakes; and wind oscillations. Electronic computation will be used.
690. **Seminar.** Credit to be arranged. May be taken more than one quarter.
699. **Thesis.** Credit to be arranged. May be taken more than one quarter.

Dairy Science (DH)

Professors Autrey, and Cannon
Associate Professor Rollins

101. **Man's Food (1). Lec. 1. Fall.**
 Analysis of the world food supply; problems of food availability and distribution; methods of alleviating food shortages; role of the food processor.
200. **Fundamentals of Dairying (5). Lec. 4, Lab. 3. All quarters. Pr., CH 103.**
 General survey of dairying. Feeding, care and management of dairy cattle. Dairy farm equipment and records. Composition and properties of milk. Handling, testing and processing of milk.
314. **Dairy Cattle Judging (3). Lec. 2, Lab. 3.**
 Comprehensive study of the ideal body type and conformation pertaining to the major dairy cattle breeds and to the functional anatomy of the cow. Practical work in comparative dairy cattle judging; conduct of judging contests, oral and written reasons for placings; fitting and exhibiting dairy cattle at fairs and shows.
317. **Dairy Cattle Feeding and Management (5). Lec. 4, Lab. 3. Pr., DH 200 and AH 204.**
 Evaluation of various feeds for growth and milk production; nutritional requirements of dairy animals; application of the principles of nutrition to dairy cattle feeding; calculating rations. Some time devoted to dairy cattle breeding plans, procedures of herd record keeping and management.
402. **Artificial Insemination (3). Lec. 1, Lab. 6. Winter. Pr., DH 200 and junior or senior standing.**
 The Artificial Insemination Association; anatomy and physiology of bovine reproduction; practice in collecting, processing and using semen in breeding cows; and study of factors affecting breeding efficiency.
403. **Dairy Farm Practices (5). Lec. 3, Lab. 6. Spring. Pr., DH 317 and junior standing.**
 Practical study of feed production, storage, and feeding problems; analysis of herd records and pedigrees; study of herd management procedures. In this course emphasis is on situations and records existing on dairy farms.
406. **Dairy Cattle Feeding and Management (3). Pr., AH 204 and DH 200 or DH 317, and graduate standing.**
 Bases of modern feeding practices; emphasis on reasons for feeding high quality roughage and high energy feeds. Limited study of dairy herd management problems and practices; milk production, testing and recording; appraisal of artificial breeding as a tool in cattle improvement.
407. **Dairy Chemistry (5). Lec. 3, Lab. 4. Pr., CH 203 or CH 208 and junior standing.**
 Chemistry of milk constituents; interaction of constituents with one another under various conditions; analyses of milk, milk constituents, and milk products.
- 408-9. **Processing Dairy Products (5-5). Lec. 3, Lab. 6. Winter, Spring. Pr., HF 342.**
 Application of processing operations to the processing of dairy products; special processing techniques; quality control of products.
410. **Food Microbiology (5). Lec. 3, Lab. 4. Spring. Pr., VM 200.**
 The relationship of habitat to the occurrence of microorganisms on food; environment affecting the growth of various microorganisms in foods; microbiological action in relation to food spoilage and food manufacture; physical, chemical and biological destruction of microorganisms in foods; methods for microbiological examination of foodstuffs; and public health and sanitation bacteriology.
411. **Food Plant Sanitation (3). Lec. 2, Lab. 2. Winter. Pr., junior standing.**
 Sanitary regulations of food plants. Principles and procedures of cleaning and sanitizing food handling equipment.
412. **Food Science Seminar (1). Lec. 1. Pr., senior standing.**
 Lectures, discussions, literature reviews by staff, students and guest speakers.

GRADUATE COURSES

601. **Milk Secretion (5). Pr., consent of instructor.**
 Anatomy and physiology of milk secretion; milk precursors; factors affecting composition of milk.
602. **Technical Control of Dairy Products (5). Pr., consent of instructor.**
 Advanced methods of analyses of dairy products and the relation between composition and processing methods.

604. **Market Milk (5).** Pr., DH 410.
Scientific investigations of current problems and their application to the commercial processing and handling of market milk. Special assigned problems.
605. **Ice Cream Making (5).** Pr., DM 410.
Scientific investigations of current problems and their application to the commercial manufacture and handling of ice cream. Special assigned problems.
607. **Advanced Dairy Cattle Breeding (5).** Pr., consent of instructor.
The anatomy and physiology of reproduction in dairy cattle; artificial insemination problems.
608. **Dairy Cattle Nutrition (5).** Pr., consent of instructor.
Critical review of literature on certain dairy cattle nutrition subjects; planning and executing one or more experimental nutrition problems.
609. **Experimental Methods in Dairy Research (5).** Pr., BY 401 or equivalent.
Study of technics in designing dairy research projects and in analyzing results.
610. **Special Problems in Dairy Science (3-5).** Credit to be arranged.
611. **Seminar (1).** May be taken for more than one quarter.
699. **Research and Thesis.** Credit to be arranged.

Drama (DR)

Associate Professor Knowles

Assistant Professor Holland

Instructor Mooney

- 101-2-3. **Introduction to the Arts (1).**
A survey of the arts with emphasis on the interrelation between the various creative areas of Art, Music, Drama, Architecture, etc. from the position of the artist and the observer.
104. **Dramatic Production (3).** Lec. 1, Lab. 6.
The physical theater and modern theatre practice.
105. **Dramatic Production (3).** Lec. 1, Lab. 6.
Acting, elementary stage movement, stage diction, stage makeup.
106. **Dramatic Production (3).** Lec. 1, Lab. 6.
Acting, elementary stage movement, stage diction, stage makeup.
- 107-8-9. **Theatre Literature (1-1-1).** Lec. 1.
An introduction to contemporary drama.
199. **Dramatics (1).**
General laboratory work (a minimum of 30 hours under staff supervision). A course open to any student interested in working with the Drama Department's producing organization, The Auburn Players. May be repeated for maximum credit of six quarter hours.
- 201-2-3. **Theatre Literature (2).** Lec. 2.
Theatre history, dramatic criticism, and dramatic literature.
204. **Dramatic Production (3).** Lec. 2, Lab. 6.
Scene Construction and Design.
205. **Dramatic Production (3).** Lec. 2, Lab. 6.
Stage lighting.
206. **Dramatic Production (3).** Lec. 2, Lab. 6.
Sound techniques in the theatre.
- 301-2-3. **Theatre Literature (2-2-2).** Lec. 2.
- 304-5-6. **Dramatic Production (3-3-3).** Lec. 2, Lab. 6.
Producing and directing.
- 307-8-9. **Dramatic Production (3-3-3).** Lec. 2, Lab. 6.
Advanced scene design and technical theatre work.
- 310-11-12. **Dramatic Production (3-3-3).** Lec. 2, Lab. 6. Only students approved by the department head may register for these courses.
Advanced acting.
313. **Drama Appreciation I (3).** General elective. Not open to Drama Majors.
A survey of the theatre and stagecraft from early times to the present day, emphasizing the social and artistic position of the stage in each civilization.
314. **Drama Appreciation II (3).** General Elective. Not open to Drama Majors.
A survey of contemporary plays and productions, aimed to make theatre-going intelligent fun.
- 401-2-3. **Theatre Literature (2-2-2).** Lec. 2.
A continuation of the material dealt with in the 301-2-3 cycle.
- 404-5-6. **Dramatic Production (3-3-3).** Lec. 2, Lab. 6.
Seminar and workshop in producing and directing.

- 407-8-9. **Dramatic Production (3-3-3). Lec. 2, Lab. 6.**
Seminar and workshop in Design-Technical theatre.
- 410-11-12. **Dramatic Production (3-3-3). Lec. 2, Lab. 6. Pr., approval of department head.**
Seminar and workshop in Advanced Acting.
- 425-26. **Dramatics in the School (5-5). Pr., senior or graduate standing. (Either part can be taken separately.) To be offered in the Summer quarter only.**
For the teacher who is called upon to select, plan, coach, and produce plays, classroom and assembly programs. The course gives a background of what-to-do and how-to-do-it.

Economics (EC), Geography (GY), Secretarial Administration (SA) and Sociology (SY)

Head Professor Anson

Professors Chastain, Hartman, Hartwig, Klontz, Richardson, Rutland, Kinsey, Henderson, and Kern
Research Professor Steele

*Associate Professors Boston, Gritz, Hill, Lamar, Henry, Myles, Shields***, Stalnaker, D. P. Hale, and Allen*

Assistant Professors Bagwell, Brown, W. D. Clark, C. W. Cook, Dorman, Frisby, F. O. Hale, Stanaland, Williams, Street, Criss, and Whartenby
Instructors Adams, Carson, R. Clark, French, Paterson, B. Andress*, L. Andress, Barbay, Beard, Blades, Bond, Dunn, Hurst, Whatley, Womack, Jenkins, McDaniel*, and M. Street**

Economics (EC)

Accounting

- 211-212. **Introductory Accounting (5-5). Lec 3, Lab. 4. Pr., sophomore standing.**
Bookkeeping procedure and elementary accounting principles. EC 211 is prerequisite to EC 212. EC 211 not open to students having credit in EC 215.
215. **Fundamentals of General and Cost Accounting (5). Lec. 3, Lab. 4. Pr., sophomore standing.**
The fundamental concepts and principles of general and cost accounting with emphasis on accumulating, reporting, and interpreting cost data in the production area of business operations. (Not open to undergraduates majoring in BA. Credit in EC 211 excludes credit for EC 215).
- 311-12. **Intermediate Accounting (5-5). Lec. 3, Lab. 4. Pr., EC 212.**
The advanced principles of accounting involving partnerships, corporations, systems, and analysis of financial statements.
314. **Income Tax Accounting (5). Pr., EC 212.**
Interpretation of the regulations, preparation of returns, and the keeping of accounting records for tax purposes will be considered in this course.
- 411-12. **Cost Accounting (5). Lec. 2, Lab. 6. Pr., junior standing and EC 312.**
Accounting principles involved in job-lot, process and standard cost systems.
414. **Advanced Income Tax Accounting (5). Pr., junior standing and EC 312 and EC 314.**
Special tax accounting problems of individuals, partnerships, corporations, estates, and trusts. Extensive use will be made of a tax service program.
416. **Auditing (5). Pr., junior standing and EC 312.**
The principles of auditing with particular attention to methods of testing, analyzing, and summarizing accounting records.
- 417-18. **Advanced Accounting (5-5). Lec. 2, Lab. 6. Pr., junior standing and EC 312.**
Advanced accounting theories and procedures, consolidation of financial statements, and other special problems will be studied in this course.
419. **Governmental Accounting (5). Summer and Winter quarters. Pr., junior standing and EC 312.**
Budgeting and accounting procedures of governmental divisions.

*Temporary.

**On leave.

Economic Theory and History

200. **General Economics (5).** Pr., MH 122 or equivalent, sophomore standing.
Economic principles with emphasis upon the macro-economic aspects of the national economy.
202. **Economics II (5).** Pr., EC 200.
A continuation of economic principles with emphasis upon micro-economic aspects of the economy.
206. **Socio-Economic Foundations of Contemporary America (3).** General elective.
The social and economic developments which lead to and help toward an understanding of present day American society.
451. **Intermediate Economics Theory (5).** Pr., EC 202, junior standing.
The theory of pricing under varying market conditions and distribution of income among the factors of production.
452. **Comparative Economic Systems (5).** Pr., EC 202, junior standing.
An analysis of the rival economic doctrines of Capitalism, Socialism, and Communism.
453. **Economics of Growth and Development (5).** Pr., EC 202 and junior standing.
Concepts, principles and problems of economic growth and development with consideration of appropriate policies for both underdeveloped and advanced economies.
454. **History of Economic Thought (5).** Pr., junior standing and EC 202.
The development of economic ideas, principles, and systems of analysis from early times to the present.
456. **Intermediate Macro-economics (5).** Pr., EC 202 and junior standing.
The measurement of national output, and with income and employment theory, general equilibrium theory, and theories of interest, investment, and consumption.
457. **Economic History of Europe (5).** Pr., junior standing.
The economic contributions of the medieval period; mercantilism; laissez-faire; and the developments in agriculture, industry, transportation, trade, and banking to World War II.
458. **Economic History of the United States (5).** Pr., junior standing.
Development of the economic institutions, growth of industries, regional specialization, and relation of government to business enterprise from the Colonial period to the present.
460. **Economic Development of the South (5).** Pr., junior standing and EC 358 or consent of the instructor.
The historical approach is used in a study of industries, transportation, banking, etc., in the South. Emphasis is given to Alabama's place in the economic picture.
471. **Foreign Trade (5).** EC 202, junior standing.
The economic background of foreign trade, various products in foreign trade, balance of trade, financing foreign trade, etc.

Finance

360. **Money and Banking (5).** Pr., EC 202 or AS 202, junior standing.
Money, credit and banking including consideration of monetary systems, foreign exchange and commercial banking with relation to the Federal Reserve System.
446. **Business Cycles (5).** Pr., EC 202 and junior standing.
The causation of economic cycles, their measurement and proposed means of control.
462. **Monetary Theory and Policy (5).** Pr., junior standing and EC 360.
Advanced monetary and banking policy. Attention given to government fiscal policies and programs.
463. **Corporation Finance (5).** Pr., EC 202 and 212, junior standing.
The financial organization and policies of modern business enterprise with special emphasis on the corporation.
464. **Investments (5).** Pr., EC 463, junior standing.
Individual investment policies, investment institutions, and types of investments available.
465. **Public Finance (5).** Pr., EC 202, junior standing.
Facts and principles of government revenues and disbursements including attention to state and local financial problems.

General Business

101. **Introduction to Business (5).**
An introductory course for Business Administration majors covering business organization and procedure. (Not open to juniors or seniors or students with credit in EC 200.)
321. **Property Insurance (5).** EC 200 and junior standing.
The principles, uses and types of insurance with particular emphasis on fire, marine, automobile and casualty lines.

322. **Life Insurance (5). Pr., EC 200, junior standing.**
The organization of the life insurance business and the various types of contracts.
323. **Real Estate (5). Pr., EC 200, junior standing.**
The fundamental principles and practices as applied to the purchase, sale, lease, mortgage, title and management of real estate.
340. **Personal Finance (3). General elective. Pr., junior standing.**
Plans for managing personal financial problems involving insurance, housing, household budgeting, investments, personal and bank loans, credit and time buying, etc.
341. **Business Law (5). Pr., EC 200, or AS 202.**
Contracts, torts, courts and partnerships from the standpoint of the average citizen. EC 343 excludes credit for this course.
342. **Business Law (5). Pr., EC 341.**
Legal principles covering sales, agency, insurance, personal property, real property, suretyship and bankruptcy presented from the standpoint of the layman.
402. **American Industries (5). Pr., EC 200, and junior standing.**
Selected industries, emphasizing economic factors affecting growth, organization and operation.
455. **Government and Business (5). Pr., junior standing and EC 202.**
The regulation and control of business by government with emphasis upon the legislation dealing with combinations, public utilities, transportation, and economic development.
472. **Economics of Transportation (5). Pr., EC 200, junior standing.**
The development of systems of transportation. Rates are studied as they affect agriculture, commerce and industry. Attention is also given to government regulation of transportation agencies.
473. **Traffic Management (5). Pr., junior standing, EC 472 or instructor's approval.**
Fundamentals of traffic control in the transportation operations of business and industrial concerns.
476. **Motor Transportation (5). Pr., EC 200, junior standing.**
The economics of the motor transportation business with emphasis on freight and passenger carriers and the highway system. Particularly designed for students of business and of civil engineering.

Management

300. **Business Organization & Management (5). Pr., EC 202.**
A brief description of the structure and major functions of business followed by evaluation of the basic managerial techniques as applied in the operation of business enterprises.
400. **Industrial Management (5). Pr., junior standing and EC 300.**
Principles and practices of modern scientific management as applied in the actual control and operation of industrial enterprises.
404. **Office Management (5). Pr., 300 or SA 400, or consent of instructor, junior standing.**
Office organization, equipment, layout, planning, personnel supervision, direction of office activities, executive control.
433. **Retail Store Management (5). Pr., EC 331, junior standing.**
The principles and practices involved in the scientific operation of the retail store. Store location, layout, buying, pricing, and merchandise control are considered among other topics.
437. **Sales Management (5). Pr., EC 300, EC 331, junior standing.**
The principles and practices of sound organization and administration of a sales organization. Includes consideration of: sales department organization, selecting, training, compensating, and supervising salesmen, sales planning, setting up sales territories and quotas and other problems.
449. **Advanced Personnel Management (5). Pr., EC 442 or PG 461.**
This course deals with the solution of selected subjects of problems which confront personnel managers and related supervisory personnel.
475. **Quantitative Methods of Management (5). Pr., junior standing and EC 245.**
Quantitative methods in management and their application in production, marketing, and finance.
480. **Business Policies and Administration (5). Pr., EC 202, EC 300, or consent of instructor, junior standing.**
A study of the formulation and application of policies and programs pertaining to personnel, production, finance, procurement and sales in the business enterprise.

Marketing

331. **Principles of Marketing (5).** Pr., EC 202.
A general but critical survey of the field of marketing covering marketing channels, functions, methods and institutions.
332. **Credits and Collections (5).** Pr., EC 200, junior standing.
The nature and functions of credit, credit investments, credit information, mercantile and installment credit, credit department, organization and management, collection methods, credit insurance, etc.
333. **Salesmanship (3).** Pr., junior standing.
The principles and problems in personal selling covering the various steps involved in the selling process. Consideration is also given to the economics of selling and to material useful to salesmen but outside the field of selling techniques.
432. **Advertising (3).** Pr., EC 331, junior standing.
The principles and practices involved in advertising. Material covered includes the analysis of the need for advertising, preliminary product and market analyses needed for efficient advertising, planning campaigns, media selection, copy, layout and advertising production.
434. **Purchasing (5).** Pr., EC 331, junior standing.
The objective, the control and the direction of industrial purchasing.
435. **Marketing Problems (5).** Pr., EC 331, junior standing.
Marketing problems, policies, costs, channels of distribution, terminal markets, trade barriers and legislation.
436. **Marketing Research Methods (5).** Pr., EC 331, junior standing.
Methods of scientific research in the field of marketing and their application to the solution of marketing problems.
438. **Retail Merchandising (5).** Pr., junior standing and EC 433.
The planning, policies, procedures, and techniques necessary to insure a balanced assortment of merchandise consistent with customer demand and profitable operation.

Personnel Management and Industrial Relations

350. **Labor Problems (5).** Pr., EC 202, junior standing.
The problems of the industrial workers from the standpoint of the worker, the employer, and society.
442. **Personnel Management (5).** Pr., EC 300 or IE 201, junior standing.
The management of labor, touching upon selection, training, placement, turnover, payment policies, employee representation, etc.
444. **Labor Legislation (5).** Pr., EC 350, junior standing.
Analysis of background, content, and significance of industrial relations, wage and hour, and selected social security laws.
445. **Industrial Relations (5).** Pr., EC 200, junior standing.
Analysis of legislation, collective bargaining, union-management corporation and economic conditions bearing upon employer-employee relations.
447. **Job Evaluation (3).** Pr., EC 442 or EC 445, junior standing or consent of instructor.
Wage and salary policy and administration with emphasis on the rationalization of wage and salary structures.
448. **Incentive Methods (3).** Pr., EC 447, junior standing or consent of instructor.
The methods and associated problems of providing incentives for workers and management personnel in industry and business.

Statistics

244. **Graphic Methods in Business (3).** Pr., EC 101.
Presentation and analysis of business data by means of graphs and charts including line, bar, area, and break-even types of charts. Graphic solutions in linear programming.
245. **Statistics (5).** Lec. 4, Lab. 2. Pr., MH 122 or equivalent and EC 202.
The methods of collecting, presenting, and analyzing statistical data; tabular and graphic presentations, frequency distribution, time series and statistical inference. Credit for MH 127 includes credit for EC 245.
474. **Advanced Statistics (5).** Pr., junior standing and EC 245 or MH 127 and consent of instructor.
More advanced methods of statistical analysis including curve fitting; curvilinear, multiple and partial correlation; analysis of variance.

GRADUATE COURSES (EC)

600. **The National Income and Capital Accumulation (5).** Pr., EC 202 and graduate standing or consent of instructor.
The computation of the national income, the uses of income data, interest rates, saving and investment, the monetary and credit system.
601. **Value and Distribution (5).** Pr., EC 202 and graduate standing or consent of instructor.
The positive content and limitations of the modern theories of value, wages, rents, and profits.
606. **Management Problems (5).** Pr., EC 480 or permission of instructor.
Basic administrative problems in business and industry; attention given to managerial controls as applied to administrative and operative functions.
607. **Managerial Economics (5).** Pr., EC 202.
Decision theory and criteria for decision-making concerning output, pricing, capital budgeting, scale of operations, investment and inventory control. Attention is also given to concepts of profits, production and cost functions, competition and equilibrium for the firm and the industry.
608. **Business Research (5).** Pr., EC 202.
The theory and practice of research through the mail survey, the personal interview, study of documents and observation. The analysis and presentation of research findings will be stressed.
610. **Managerial Accounting (5).** Pr., EC 212.
Primarily non-technical, for the student who will be confronted with business problems requiring a comprehensive understanding of accounting concepts, and the accepted methods of applying these concepts in decision-making, planning, and control.
611. **Advanced Accounting Theory (5).** Pr., EC 312 and graduate standing or consent of instructor.
A review of the origin and development of double-entry accounting; followed by a critical study of the theory of modern accounting principles and procedures.
614. **Accounting Systems (5).**
616. **Advanced Auditing (5).** Pr., EC 416 and graduate standing or consent of instructor.
The application of auditing principles and procedures to practical problems encountered in the field of public and private accounting.
617. **Advanced Accounting Problems (5).** Pr., EC 417 and graduate standing or consent of instructor.
An extension to and a consolidation of all the other advanced accounting courses. Attention will be given to preparation for special accounting examination.
621. **Personnel and Labor Policy (5).**
Seminar analysis and discussion of selected personnel or labor problems, programs and cases.
622. **Theory of Wages and Labor Mobility (5).** Pr., EC 350 and EC 451 or permission of instructor.
Includes advanced study of various theories of wage determination and of theories and empirical studies of labor supply and mobility.
650. **Economic Seminar (1-10).** Pr., graduate standing or consent of instructor.
For those students engaged in intensive study and analysis of economic problems.
654. **Advanced History of Economic Thought (5).** Pr., EC 454 or consent of instructor.
A study tracing the development of economic thought with emphasis upon Classical and Neo-Classical authors and their critics. The contributions of each writer are examined in the economic context from which they emerged and their influence on economic thought and national policy considered.
660. **Econometrica (5).** Pr., EC 451, EC 474, EC 446 or EC 465, AS 460 and MH 405.
Application of mathematics and statistical methods to problems of economic analysis. Econometric models of the economy as a whole and of individual sectors will be considered.
662. **Seminar in Money and Banking.** (EC 360 and consent of instructor.)
Goals, procedures, and achievements in attaining monetary objectives at home and abroad. Special emphasis is given to published research results.
665. **Seminar in Public Finance (5).** Pr., EC 202 and graduate standing or consent of instructor.
Theory and principles of public finance at an advanced level with special emphasis on fiscal policy.

671. **International Economics and Finance (5).** Pr., EC 471.
Advanced study of foreign trade theory and balance of payments analysis, exchange rates, capital movements, financial institutions. Current problems in international finance are examined.
674. **Advanced Statistical Analysis (5).** Pr., EC 474.
Further study of analysis of variance; analysis of covariance; introduction to econometrics.
675. **Managerial Statistics (5).** Pr., EC 474.
Application of classical and Bayesian statistical decision theory in the solution of management problems.
699. **Research and Thesis.** Credit to be arranged. May be taken more than one quarter.

Geography (GY)

For listing of courses, see page 226.

Secretarial Administration (SA)

For listing of courses, see page 278.

Sociology (SY)

For listing of courses, see page 279.

Electrical Engineering (EE)

Head Professor Holmes

Professors Graf, Haeussermann, Honnell, Lowry, Phillips, and Russell

Associate Professors Carroll, Feaster, Hickman, Nichols, Slagh, Sprague, and Ventrice*

Assistant Professors Breland, Dyer, James, Miller, and Rogers

Instructors Dupree, Golden, and Nale

263. **Circuit Analysis I (5).** Lec. 4, Lab. 3. Pr., PS 203 and MH 361.
Basic definitions; laws; theorems; techniques.
304. **Electric Circuits (4).** Pr., MH 252 or 263 and PS 203 or 206.
Passive and active circuits. Not open to electrical engineering students.
305. **Electronics and Instrumentation (5).** Lec. 4, Lab. 3. Pr., EE 304.
Instrumentation systems; communications systems. Emphasis on application. Not open electrical engineering students.
306. **Machinery and Power Transmission (5).** Lec. 4, Lab. 3. Pr., EE 304.
Electrical machinery; power transmission. Emphasis on application. Not open to electrical engineering students.
361. **Circuit Analysis II (5).** Lec. 4, Lab. 3. Pr., EE 263.
Sinusoidal steady-state analysis, including magnetically coupled circuits; Fourier analysis.
362. **Circuit Analysis III (5).** Lec. 4, Lab. 3. Pr., EE 361.
Transients.
363. **Distributed Systems (5).** Lec. 4, Lab. 3. Pr., EE 362.
Transmission lines; other distributed parameter systems.
372. **Electronics and Communications I (4).** Lec. 3, Lab. 3. Pr., EE 361.
Semiconductors; gas and vacuum devices; active circuits.
373. **Electronics and Communications II (5).** Lec. 4, Lab. 3. Pr., EE 372, EE 362.
Amplifiers; oscillators; modulation; feedback; information theory.
383. **Energy Conversion and Control Systems I (5).** Lec. 4, Lab. 3. Pr., EE 361.
Principles of energy conversion.
413. **Physical Electronics (4).** Pr., EE 492.
Physical principles of electrical and electronic devices.
443. **Solid State Electronics (3).** Lec. 2, Lab. 3. Pr., EE 471, EE 491 and junior standing.
Applied solid state physics; selected topics in advanced solid-state devices and circuits.
444. **Digital Computers (3).** Lec. 3. Pr., EE 471 and junior standing.
Logic circuits; system analysis; applications of Boolean Algebra.
445. **Nuclear Instrumentation (3).** Lec. 3. Pr., EE 471 and junior standing.
Electronic systems and devices utilized in nuclear science and technology.

* On leave.

446. **Analog Computers (3).** Lec. 2, Lab. 3. Pr., EE 471 and junior standing.
Computer programming including time and amplitude scaling. Computer solution of linear, non-linear, and partial differential equations. Simulation of various types of physical systems.
447. **Magnetic Devices (3).** Pr., EE 481 and junior standing.
Magnetic amplifiers and related magnetic devices employing both extrinsic and intrinsic feedback.
461. **Introductory Network Synthesis (3).** Pr., EE 362 and junior standing.
Introduction to the synthesis of passive networks, with emphasis on driving point functions.
471. **Electronics and Communications III (5).** Lec. 4, Lab. 3. Pr., EE 373.
Continuation of EE 373.
472. **Electronics and Communications IV (5).** Lec. 4, Lab. 3. Pr., EE 471.
Continuation of EE 471.
473. **Communication Systems (3).** Pr., EE 472 and junior standing.
Theoretical topics in modern communications systems.
481. **Energy Conversion and Control Systems II (5).** Lec. 4, Lab. 3. Pr., EE 383.
Continuation of EE 383; steady state and dynamic characteristics of electromechanical machines.
482. **Energy Conversion and Control Systems III (5).** Lec. 4, Lab. 3. Pr., EE 481.
Continuation of EE 481; automatic control theory.
483. **Energy Conversion and Distribution (3).** Pr., EE 481 and junior standing.
Further practical aspects of energy conversion and distribution.
484. **Electronic Instrumentation for Graduate Students (4).** Lec. 3, Lab. 3. Pr., PS 203, MH 361, 8 hours of Electrical Engineering and junior standing.
Fundamentals of electronic instrumentation; special topics. Not open to electrical engineering students.
490. **Seminar.** Credit to be arranged. May be taken more than one quarter.
491. **Electromagnetic Fields I (5).** Lec. 4, Lab. 3. Pr., EE 363.
Differential and integral equations of the electromagnetic field; boundary conditions; solution of elementary boundary value problems.
492. **Electromagnetic Fields II (5).** Lec. 4, Lab. 3. Pr., EE 491.
Theory and application of guided waves; theoretical and experimental study of microwave devices and systems; relationship between field theory and circuit theory.
493. **Electromagnetic Fields III (5).** Lec. 4, Lab. 3. Pr., EE 492 and junior standing.
Radiating systems; wave propagation in unbounded media; applications to space communications; illustrative experiments.

GRADUATE COURSES

601. **Linear Analysis I (5).**
Methods of analysis, the exponential forcing function, Fourier series, Fourier transform, Laplace transform, and superposition integrals. Complex variables and contour integration.
602. **Linear Analysis II (5).** Pr., EE 601.
Generalized four terminal networks; network parameters, equivalent circuits, and interconnection of networks. Signal-flow diagrams, stability and transients on transmission lines.
610. **Power Transmission Systems (5).** Pr., EE 601.
Power transmission systems operating under both normal and fault conditions; problems of design, protection, relaying, and metering; various types of instabilities; application of digital computers to problems in power transmission.
612. **Advanced Topics in Electromechanical Energy Conversion (5).** Pr., EE 601.
Dynamic equations of motion of electromechanical systems; the generalized rotating electromechanical energy converter; dynamics of systems; the n - m symmetrical machine.
615. **Advanced Electrical Measurements (5).** Lec. 4, Lab. 3. Pr., EE 601.
Measurements of circuit parameters, current, voltage, power, frequency, and wave shape at all frequencies; capabilities and limitations of contemporary measuring equipment.
617. **Principles of Pulse Circuits (5).** Lec. 4, Lab. 3. Pr., EE 601.
Analysis and design of basic types of pulse forming circuits, with applications to pulse systems and laboratory work suited to the individual student's needs.
618. **Advanced Closed-Loop Control Systems (5).** Lec. 4, Lab. 3. Pr., EE 601, EE 442.
Correlation of frequency and transient response; regulation of lumped and distributed parameter systems; modulated carrier systems; sampled-data systems and z transforms; off-on systems by phase plane and method of Kockenburger; topics associated with contemporary publications.

- 621. Electronic Computer Theory (5).** Lec. 4, Lab. 3. Pr., EE 601.
General study of computer components; operational amplifiers, function generators, multipliers, stabilized power supplies; pulse circuits, memory storage devices and read-outs devices; techniques of computer operation.
- 625. Sampled-Data Control Systems (5).** Pr., EE 618.
Analysis and synthesis of closed-loop sampled-data control systems using the z-transform; multirate sampled-data control systems; finite-width sampling.
- 626. Modern Control Theory (5).** Pr., EE 618.
Variational calculus in optimum control; the maximum principle of Pontryagin; dynamic programming; introduction to Wiener-Kalman-Bucy filter theory.
- 630. Electromagnetism (5).** Pr., consent of instructor.
Theory and application of electromagnetism for students not specializing in electromagnetics.
- 632. Quantum Electronics (5).** Pr., EE 630.
The role of quantum theory in electronics and communications; interaction of electromagnetic radiation and discrete energy level systems; microwave solid-state masers; optical masers.
- 633. Nonlinear Analysis (5).** Pr., EE 601.
Detailed study of systems of nonlinear differential equations with illustrative examples drawn from models representing technological devices based on nonlinear effects.
- 634. Parametric Electronics (5).** Pr., EE 633.
Theory of parametric systems; analysis of noise.
- 635. Theory and Applications of Magnetic Semiconductors (5).** Pr., EE 630.
Types of magnetism; interaction of electromagnetic radiation and magnetic moment in solids having strong exchange coupling; applications to communications and electronics.
- 636. Nonlinear Control Systems (5).** Pr., EE 618.
The analysis and synthesis of nonlinear closed-loop control systems; Lyapunov's methods; other stability criteria; numerical methods.
- 637. Plasma Dynamics (5).** Pr., EE 630.
A study of the dynamic properties of systems of charged particles, with emphasis on systems constrained by steady or time-varying magnetic fields. Areas emphasized are basic theory, laboratory models, and instrumentation.
- 638. Information Theory (5).** Pr., EE 601.
Quantitative study of information transfer in discrete and continuous channels; the effect of noise on communication channels; the use of efficient coding to increase transmission reliability.
- 639. Switching Circuits I (5).** Pr., EE 601.
A study of number systems, binary coding, Boolean algebra, combinational switching circuits, multiple output combinational circuits, and bilateral switching networks.
- 640. Switching Circuits II (5).** Pr., EE 639.
Models and elementary properties of sequential machines; sequential machine compatibility, equivalence, and state minimization; state assignment for sequential machines; asynchronous switching networks; and, speed independent switching circuit theory.
- 641. Digital Systems (5).** Pr., EE 639.
Memories and the associated read and write circuitry; arithmetical units; analog-to-digital converters; digital-to-analog converters; and special purpose digital units.
- 642. Advanced Topics in Digital Systems (5).** Pr., EE 639.
Current topics in the field of digital systems. This course will include a complete study of current issues of journals concerned with the design of digital systems.
- 645. Network Synthesis I (5).** Pr., EE 601.
Two-terminal passive networks; properties, realizability, and principles of synthesis. Conventional and modern filter synthesis.
- 646. Network Synthesis (II).** Pr., EE 645.
Four-terminal passive networks; properties, realizability and principles of synthesis. Potential analogy and approximation problems.
- 648. Statistical Communication Theory (5).** Pr., EE 601.
Statistical representation of electrical signals and noise; harmonic analysis, correlation, probability and sampling theory. Detecting and filtering of signals corrupted by noise.
- 650-1-2. Electromagnetic Theory and Applications I-II-III (5-5-5).** Pr., consent of instructor.
A three-course sequence for students specializing in electromagnetics.
- 653. Antennas (5).** Pr., consent of instructor.
Advanced treatment of radiating systems.
- 680. Directed Reading in Electrical Engineering.** Credit to be arranged.

690. Seminar. Credit to be arranged. May be taken more than one quarter.
 699. Research and Thesis. Credit to be arranged. May be taken more than one quarter.
 799. Research and Dissertation. Credit to be arranged. May be taken more than one quarter.

Elementary Education (EED)

Head Professor Coss

Associate Professors Ellisor, and Newell

Assistant Professors Ashbaugh, Barberousse, Cadenhead, English, Hayes,

Jensen, Roughton, Spencer, and Wilder

Instructors Browning, Duncan*, Edge*, Greene*, and Justice**

Orientation

101. **Orientation: Personal and Professional (3).**
 Helps transfers from other curricula and students enrolled in other schools achieve optimum personal, social, and intellectual development as college students. Helps them understand teaching as a profession. (Credit in EED 101 excludes credit in EED 102-3-4.)
- 102-3-4. **Orientation: Personal and Professional (1-1-1).**
 Helps freshmen achieve optimum personal, social, and intellectual development as college students and to assist in planning professional careers. (Credit in EED 102-3-4 excludes credit in EED 101.)

Reading Improvement

Available as a service course and as a general elective to all University students.

310. **Reading Improvement (3).** Lec. 2, Lab. 2. General elective. (Not open to students with credit in PG 101.)
 Developmental reading for students who wish to improve their reading skills. Each student's present degree of reading efficiency is diagnosed and a program structured to his individual needs is planned and conducted.

Curriculum and Teaching

Undergraduate

329. **Creative and Recreational Expression (6).** Lec. 5, Lab. 3. Pr., FED 300 or consent of department chairman.
 Creative and recreational expression, involving basic knowledge and understanding, laboratory demonstrations, and experimental approaches useful in this development, including such areas as music, art, rhythms, and other play activities, creative dramatics, creative writing, and use of learning materials.
370. **Teaching Elementary School Mathematics (4).** Pr., FED 300 or consent of department chairman.
 Emphasis on understanding of curriculum content, current trends in teaching, use of appropriate teaching materials, planning for instruction, and evaluation of instruction.
371. **Teaching of Reading and Other Language Arts (6).** Pr., FED 300 or consent of department chairman.
 Provides a balance between the theory and the methods of teaching reading and oral and written expression, including the use of appropriate instructional materials, equipment and organizational plans for various grade levels.
396. **Music for the Elementary Teacher (3).** Pr., MU 371 or consent of department chairman.
 Elective course for Elementary Education Majors who need additional instruction in music.
421. **Developing Understandings of the Natural and Social Environment (6).** Lec. 5, Lab. 3. Pr., FED 300 or consent of the department chairman.
 Attention given to social science, natural and physical science, health and safety through use of appropriate children's books and other instructional materials, laboratory demonstrations and experimental approaches.

Undergraduate students in elementary education are eligible to complete requirements for teaching in certain areas in both the elementary and secondary schools. Students with this interest will complete one course in Teaching and one course in Program and a subject-matter concentration of 27 to 30 quarter hours in the subject-

*Temporary.

matter field selected. Teaching fields for the twelve-grade program include health, physical education and recreation, page 226, industrial arts, page 286, and the areas listed under Interdepartmental, page 241. (For description of student teaching requirements, see page 241.) Available courses for meeting the subject-matter concentration are listed under minor requirements for each field included in the twelve-grade program.

425. **Student Teaching in Elementary School (10-15).** Pr., senior standing.
(For description, see page 241.)

Advanced Undergraduate and Graduate

461. **Current Theory and Practice in the Teaching of Reading (5).** Pr., junior standing and teaching experience or consent of instructor.
Principles of reading instruction within the settings of the areas of child development, learning theories, individual differences, the role of reading in the total school and community environment, and examination of current reading materials.
474. **Problems in Improvement of Reading at the Elementary School Level (5).** Pr., junior standing and teaching experience or consent of instructor.
An examination of problem areas of effective reading instruction in grades one through nine. Emphasis on phonetic word attack skills, comprehension, vocabulary building, and the use of supplementary materials in the reading program.
496. **Music in the Elementary School (5).** Pr., junior standing.
To give the individual teacher a deeper insight into skills, techniques, and knowledge of music. Appropriate materials, adapted to social and musical interests of children, are studied and evaluated.
497. **Organization of Elementary School Music (3).** Pr., junior standing and EED 329 or IED 423.
Theory and development of the music program in the elementary school.

Graduate

646. **Studies in Education (1-3).** Pr., one quarter of graduate study.
A research problem will be selected in consultation with the professor who will supervise it. The problem should contribute to the program of the student. (Credit in ED 651 prior to 1960 excludes credit in this course.)
649. **Educational Trends and the Basic Skills (5).**
Recent developments in the elementary and junior high school with implications for teaching the basic skills.

The two courses which follow constitute an area of concentration in the field of reading. EED 461 is a prerequisite for EED 642 which is designed for remedial teachers, supervisory personnel and those wishing specialized training in the field of reading. EED 656 will be restricted to persons interested in developing an area of specialization appropriate for diagnostic, consultative, or supervisory services.

642. **Remedial Procedures in Reading (5).** Lec. 3, Lab. 4. Pr., EED 461 or consent of department chairman.
To produce skilled workers in the remedial aspect of reading. Emphasis placed on the diagnosis of reading disabilities and appropriate individual and group techniques for correcting deficiencies discovered.
656. **Directed Individual Study in Reading Diagnosis and Reading Remediation (5-10).** Pr., EED 642 or consent of departmental chairman.
Clinical experiences in diagnosing problems in reading and related areas. Also clinical experiences in the remediation of reading problems.

Curriculum and Teaching in the Respective Areas of the Elementary School Program

Each of these courses 651, 652, 653, and 654 applies to the following areas of the elementary school program: (G) Language Arts, (H) Mathematics, (K) Science, and (L) Social Science.

651. **Research Studies in Education in Areas of Specialization (5).** Pr., 18 hours of appropriate subject matter and 36 hours of psychology and professional education.
Review, analysis, and interpretation of available research with emphasis on designing new research to meet the changing needs of the school.

652. Curriculum and Teaching in Areas of Specialization (5). Pr., 18 hours of appropriate subject matter and 36 hours of psychology and professional education. Teaching practices and reappraisal of selecting experiences and content for curriculum improvement.
653. Organization of Program in Areas of Specialization (2-5). Pr., 18 hours of appropriate subject matter and 36 hours of psychology and professional education. Program, organization, and development of basic and supplementary materials for guiding teachers, faculties, and school systems in the continuous improvement of curriculum and teaching practices.
654. Evaluation of Program in Areas of Specialization (2-5). Pr., 18 hours of appropriate subject matter and 36 hours of psychology and professional education. Evaluation and investigation of teaching effectiveness with attention also given to the utilization of human and material resources and the coordination of areas of specialization.

Study in other teaching areas including art; dramatic arts; gifted; mental retardation; music; speech; speech correction; health, physical education and recreation; and industrial arts is available also to students in elementary education.

- 659-660. Practicum in Areas of Specialization (5-5). Permission of major professor. Provides advanced graduate students with supervised experience with emphasis on the application of concepts, principles, and skills acquired in previous course work.

For advanced courses in curriculum, school library science, higher education, and research and dissertation, see IED.

Thesis

699. Thesis Research. (Credit to be arranged.) May be taken more than one quarter.

Engineering Graphics (EG)

Head Professor Francis

Associate Professors Ingram, Little, McClung, and Thornton

Assistant Professors Clement, and Klepinger

Instructors Bilbe, and Stewart

102. Engineering Drawing I (2). Lab. 6. Pr., Plain Geometry.
Use of instruments; lettering practice; geometric constructions; principle views in projection; auxiliary and section views; dimensioning; detail working drawings; and isometric projection.
104. Descriptive Geometry (2). Lab. 6. Pr., EG 102 and Solid Geometry.
Basic principles pertaining to points, lines, and planes; including problems on sections, developments, and intersections of solids.
105. Engineering Drawing II (2). Lab. 6. Pr., EG 102.
Technical sketching; reading analysis of shop drawings; machine parts, detail and assembly drawings; types and arrangement of materials; titles and symbols; tracings, printing, and other reproduction methods; steel and timber structures; riveting and welding.
204. Kinematics of Machines (3). Lec. 2, Lab. 3. Pr., EG 104, EG 105, and coreq., PS 201. Spring quarter.
A study and graphical analysis of the fundamental elements of machines, including: definitions, velocity and acceleration diagrams, methods of transmission of motion by links, cams, gears, gear trains, and flexible connectors.
205. Applied Graphic Statics (2). Lec. 1, Lab. 3. Pr., EG 105 and coreq., PS 201.
Resultants and equilibrium of concurrent, parallel and non-parallel forces; moments of parallel forces; general cases of reaction of coplanar forces; stresses in simple trusses by joint and section methods; cranes, derricks, dredges, and frames with bending members; static forces in machines with and without friction.
206. Technical Sketching (2). Lab. 6. Pr., EG 104 and EG 105.
Technical lettering, block and architectural; types of illustrations, purpose and use; sketching techniques; pictorial drawings, oblique, isometric, dimetric, trimetric; perspective; shading; use of the airbrush; charts; reproductions of drawings.
306. Advanced Graphics for Engineers (3). Lec. 2, Lab. 3. Pr., EG 104, MH 361.
Vector geometry, functional scales, nomography, combination of observations, empirical equations, and graphical calculus.

GRADUATE COURSES

612. Design of Jigs and Fixtures (5). Lec. 3, Lab. 6. Spring.
Study of accepted types of jigs, fixtures and dies; production rates, expense and savings, automatic tooling design, indexing operations.
620. Patents (5). Winter.
Patentability, claims, patent office procedures, foreign patents, role of patent attorney, patent drawings, sale and exploitation of patents.

English (EH)

Head Professor Patrick

Professors Amacher, Benson, Breyer, Brittin, Burnett, Current-Garcia,

Gosser, Haines, McCann, Nist, and Woodall

Associate Professors Allen, Jones, and Wright

Assistant Professors Butler, Durant, Faulk, S. Hudson, McLeod,

Michael, Rose, and Stroud

Instructors Alexander, Askins, Days, Geyer*, Hearn, M. Hudson, Lehmann, Logue,*

Patterson, Richardson, Schneider, Smith, O. Solomon, Waters, Welsh, and Wynn

The requirements for the English major enrolled in the School of Science and Literature are stated on page 149, and for the English major enrolled in the School of Education, on page 100.

English Composition (101-102 or 103-104) is required of all students and is a prerequisite for all other courses in English.

010. Remedial English (5 hrs. lec.—non-credit.)
A remedial course in the fundamentals of grammar and composition.
- 101-2. English Composition (5-5). EH 101 pr. for EH 102. All quarters.
A course in the essentials of grammar, composition, and reading.
- 103-4. English Composition for Superior Students (5-5). All quarters.
Reading and composition for superior students.
108. Classical Literature (5). All quarters.
The reading and discussion of significant works of classical Greek and Roman literature with emphasis on the western heritage of ancient thought.
141. Medical Vocabulary (5). All quarters.
A course dealing with prefixes, suffixes, and the more common root words of medical terminology.
208. Literature of the Western World (3). General elective. Pr., EH 108 or EH 253. All quarters.
The study of about eight significant literary works of the Western World which provide representative views of man in the Medieval, Renaissance-Reformation, and Eighteenth Century periods.
253. Literature in English (5). All quarters.
A study of the literature of England from 1400 to 1800.
254. Literature in English (5). All quarters. Pr., EH 253.
A study of English and American literature of the nineteenth and twentieth centuries.
301. Creative Writing (3). General elective. Fall, Spring.
A course devoted principally to the writing and criticizing of short stories. But the student may be permitted to write poetry, drama, or any other form of imaginative literature.
302. Creative Writing (3). General elective. Fall, Spring.
A continuation of English 301.
304. Technical Writing (3). All quarters.
Not open to students with credit in EH 345. Report writing for engineers.
310. Word Study (3). General elective. Fall, Spring.
A study of the history of English words and their meanings with the object of improving the student's command of his language and illustrating for him some of the patterns in the development of human thought.
312. The European Novel (5). Spring.
The reading and analysis of significant novels by major European writers.
320. An Introduction to Drama (3). General elective. Winter.
Representative tragedies and comedies of Europe from antiquity to the present. Such figures as Sophocles, Moliere, Shakespeare and Ibsen will be considered.

*Temporary.

325. **The Short Story (5). Winter.**
The development of the short story in America and Europe from the early nineteenth century to the present.
330. **Medieval Literature in Translation (5). Spring.**
The study of masterworks of English and European literature produced from 1250 to 1400.
340. **The Classical Background (5). Fall. Not open to students with credit in EH 108.**
Readings from the major Greek and Roman writers. The texts studied are chosen with particular attention to their subsequent influence upon English and American literature.
345. **Business and Professional Writing (5). All quarters.**
A course in practical composition including abstracting, correspondence, and reports for students in business administration and pre-professional science.
NOT OPEN TO ENGLISH MAJORS OR MINORS. Students cannot earn credit in this course and also in EH 304.
350. **Shakespeare's Greatest Plays (3). General elective. Fall. Not open to students with credit in EH 451-2.**
A study of some of Shakespeare's masterpieces.
352. **Contemporary Fiction (5). Fall.**
American and British novelists from Lawrence to Faulkner.
353. **Contemporary Drama (5). Spring.**
Continental, British, and American dramatics from Ibsen to the present day.
357. **Survey of American Literature (5). Fall.**
American literature from the beginning to 1860.
358. **Survey of American Literature (5). Spring.**
American literature from 1860 to the present.
360. **Continental Fiction (3). General elective. Winter.**
A study of representative European short stories and novels.
361. **History of English Drama (5). Winter.**
English drama from the medieval period to 1900.
363. **Eighteenth Century English Literature (5). Fall.**
A survey of poetry and prose from Dryden through Shenstone.
365. **Southern Literature (3). General elective. Spring.**
372. **The American Novel (5). Winter.**
The development of the American novel from the beginning to 1900.
381. **The Literature of the Age of Reason (3). General elective. Fall.**
A study of rationalism, its assumptions and effects, political, social, and scientific as seen in the works of such major eighteenth-century writers as Locke, Johnson, Burke, Voltaire, and Rousseau.
390. **Advanced Composition (5). All quarters.**
The practice and theory of expository writing; the command of language for the clear and forceful communication of ideas.
394. **Introduction to Linguistics (5). Winter.**
A study of the phonological, morphological, and syntactical systems of late modern English.
401. **Advanced English Grammar (5). Fall, Spring. Pr., junior standing.**
A study of both formal and functional grammar.
410. **European Literature (5). Winter. Pr., junior standing.**
A survey of the principle European literary figures and trends from the Renaissance to the present, with emphasis on the literature of Italy, France and Germany.
415. **Great Nineteenth Century Writers (3 hrs.).**
A study of selected works of five to eight important Nineteenth Century writers such as Balzac, Flaubert, Chekhov, Turgenev, James and Zola.
420. **Great Twentieth Century Writers (3 hrs.).**
A study of selected works by five to eight important Twentieth Century authors such as Conrad, Shaw, Faulkner, O'Neill, Joyce, Kafka, and Sartre.
441. **History of the English Language (5). Spring.**
A study of the chronological development of the English language.
450. **Contemporary Poetry (5). Winter. Pr., junior standing.**
The chief modern poets of England and America.
- 451-2. **Shakespeare (5-5). Fall, Winter, Spring. Pr., junior standing.**
The first quarter deals with the plays written before 1600, emphasizing comedies; the second, with the plays written after 1600, stressing tragedies.
Credit for either or both of these courses excludes credit for EH 350.
456. **The English Romantic Movement (5). Spring. Pr., junior standing.**
A survey of Romantic poetry from Gray to Keats.

457. **Victorian Literature (5).** Winter, Pr., junior standing.
The major poets and non-fiction writers from 1830 to 1890.
459. **Poetry and Prose of the English Renaissance (5).** Fall, Pr., junior standing.
A survey of the non-dramatic literature of the Tudor Period.
463. **Eighteenth Century English Literature (5).** Spring. Pr., junior standing.
A survey of poetry and prose from Johnson through Blake.
- 481-2. **English Novel (5-5).** Fall, Winter. Pr., junior standing.
The first quarter provides a survey of the development of fiction from the Greek Romances down through the Renaissance and then concentrates on the great English novelists of the 18th Century. The second quarter provides a survey of the English novel from Jane Austin to Thomas Hardy.
491. **American Poetry (5).** Fall, alternate years. Pr., junior standing.
A study of the major American poets from the Colonial period to 1920.
492. **American Drama (5).** Fall, alternate years. Pr., junior standing.
A survey of American dramatic and stage history from Colonial times to the nineteenth century, with emphasis on developing tastes and techniques.
495. **Southern Literature (5).** Spring. Pr., junior standing.
A study of the poetry, fiction, and non-fiction prose writings in the South from Revolutionary times to the present, with major emphasis centering on Southern regional attitudes and trends. Not open to students with credit in EH 365.
- 498-99. **Readings for Honors (5-5).** Pr., junior standing with a minimum 2.0 overall average, a 2.5 average in at least five upper division English courses, and the consent of the English Department.
Individual reading programs in a specific period or phase of literature or language, as determined by the instructor and student. An honors essay and a written examination will be required.

GRADUATE COURSES

610. **Introduction to Graduate Study (5).** Summer, Fall, Winter.
- 611-12. **Studies in the History and Interpretation of Literature (5-5).** Summers only.
- 616-17. **Studies in the American Language (5-5).** Summers only.
620. **The English Language, I: Old English (5).** Fall.
621. **The English Language, II: Middle and Modern English to 1500 (5).** Winter. Pr., EH 620.
623. **Beowulf (5).** Winter. Pr., EH 620.
625. **Medieval Literature (5).** Fall.
626. **Chaucer (5).** Spring.
627. **Linguistics, I: Phonology and Morphology (5).** Fall, Summer.
628. **Linguistics, II: Syntax and Grammar (5).** Summer, Winter.
629. **Linguistics, III: Formal Stylistics (5).** Spring.
631. **Elizabethan and Jacobean Drama (5).** Fall.
632. **Spenser (5).** Spring 1966. Alternates in Spring with 635.
633. **Studies in the Poetry and Prose of the English Renaissance (5).** Winter.
634. **Poetry and Prose of the Seventeenth Century (5).** Winter.
635. **Studies in Shakespeare (5).** Alternates in Spring with 632.
636. **Milton (5).** Spring.
640. **Restoration and Eighteenth Century English Drama (5).** Spring.
641. **Studies in the Age of Pope (5).** Fall.
642. **Studies in the Age of Johnson (5).** Winter.
650. **Studies in English Romanticism (5).** Winter.
652. **Victorian Poetry (5).** Spring.
653. **Victorian Prose (5).** Fall.
654. **Studies in the Nineteenth Century English Novel (5).** Spring.
660. **Modern Poetry (5).** Spring.
661. **Modern Fiction (5).** Winter.
662. **Studies in Twentieth Century Literature (5).** Fall.
670. **American Literature of the Colonial and Revolutionary Periods (5).** Spring.

- 671. Studies in American Literature, 1800-1860 (5). Alternates in Summers and Winters with 673.
- 672. Studies in American Literature, 1860-1914 (5). Fall.
- 673. Studies in the Literature of the South (5). Alternates in Summers and Winters with 671.
- 680. The History of Literary Criticism (5). Alternates in Summers and Winters with 681.
- 681. The History of Literary Criticism (5). Continuation of EH 680. Alternates in Summers and Winters with 680.
- 684-85. Directed Individual Study (5-5).
- 699. Research and Thesis (5).
- 799. Research and Dissertation (5).

Foreign Languages (FL)

Research Professor of Comparative Linguistics Skelton

Associate Professors Hamilton and Whartenby

Assistant Professors Helmke, and Warbington

Instructors Calvez, Fugler, Isemonger, Lewis, Shepard, Walters, and Wolverton

Students who have completed two or more years of foreign language in high school should continue that language on the intermediate level. College credit is not granted for an elementary course when the student has pursued that language two years in high school.

French

- 121. Elementary French I (5).
To give the student the fundamentals of the French language together with as much simple reading as time will permit. Constant stress will be placed on oral and aural practice, with special emphasis on idiomatic expression.
- 122. Elementary French II (5). Pr., FL 121 or equivalent.
A continuation of FL 121.
- 221. Intermediate French I (5). Pr., FL 122 or equivalent.
Designed to acquaint the student with the background and the civilization of France and at the same time provide practice in reading current French. Special emphasis is placed on the acquisition of vocabulary and on oral practice.
- 222. Intermediate French II (5). Pr., FL 221 or equivalent.
An introduction to French literature. Representative works of moderate difficulty and high literary value will be read. Oral practice will be continued.
- 321. Advanced French I (5). Pr., FL 222 or equivalent.
Outstanding prose works, especially short stories and novels. Continued emphasis on vocabulary building and oral practice.
- 322. Advanced French II (5). Pr., FL 222 or equivalent.
A continuation of FL 321, with a review of French grammar and practice in composition.
- 421. Contemporary French Literature I (5). Pr., FL 222 or equivalent.
Selected readings in the literature of the nineteenth and twentieth centuries. Advanced practice in conversation.
- 422. Contemporary French Literature II (5). Pr., FL 222 or equivalent.
A continuation of FL 421.
- 423. Survey of French Literature (5). Pr., FL 422 or dept. approval.
A study of the development of French literature from the Chansons de geste through the classical period.
- 424. Survey of French Literature (5). Pr., FL 422 or dept. approval.
A continuation of FL 423. The development of French literature from Romanticism to the modern period.

Spanish

- 131. Elementary Spanish I (5).
An introduction to the structure of the Spanish language, with practice in speaking, understanding, reading, and writing.
- 132. Elementary Spanish II (5). Pr., FL 131 or equivalent.
A continuation of FL 131.

231. **Intermediate Spanish I (5).** Pr., FL 132 or equivalent.
Designed to acquaint the student with the civilization of Spain while providing practice in reading and speaking.
232. **Intermediate Spanish II (5).** Pr., FL 231 or equivalent.
An introduction to Spanish literature. Representative works of outstanding Spanish writers will be examined.
331. **Advanced Spanish I (5).** Pr., FL 232 or equivalent.
Recognized works of Spanish and Spanish-American writers with a review of Spanish grammar and practice in composition.
332. **Advanced Spanish II (5).** Pr., FL 232 or equivalent.
A continuation of FL 331. Continued emphasis on vocabulary building and oral practice.
431. **Contemporary Spanish Literature I (5).** Pr., FL 232 or equivalent.
Selected readings in the literature of the nineteenth and twentieth centuries. Advanced practice in conversation.
432. **Contemporary Spanish Literature II (5).** Pr., FL 232 or equivalent.
Selected readings in Spanish-American literature of the nineteenth and twentieth centuries. Advanced practice in conversation.
433. **Survey of Spanish Literature (5).** Pr., FL 432 or dept. approval.
A study of the development of Spanish literature from Poema del mio Cid through the Golden Age.
434. **Survey of Spanish Literature (5).** Pr., FL 432 or dept. approval.
A continuation of FL 433. The development of Spanish Literature from the Decadencia to the contemporary period.

German

151. **Elementary German I (5).**
An introduction to the structure of the German language, with practice in speaking, understanding, reading, and writing.
152. **Elementary German II (5).** Pr., FL 151 or equivalent.
A continuation of FL 151.
251. **Intermediate German I (5).** Pr., FL 152 or equivalent.
Designed to provide the student with an understanding of the civilization of Germany while providing practice in reading and speaking the language.
252. **Intermediate German II (5).** Pr., FL 251 or equivalent.
An introduction to German literature. Representative works of various German authors will be studied.
351. **Advanced German I (5).** Pr., FL 252 or equivalent.
Recognized works of German writers, with a review of German grammar and practice in composition.
352. **Advanced German II (5).** Pr., FL 252 or equivalent.
A continuation of FL 351. Continued emphasis on vocabulary building and oral practice.
451. **Contemporary German Literature I (5).** Pr., FL 252 or equivalent.
Selected readings in German literature of the nineteenth and twentieth centuries. Advanced practice in conversation.
452. **Contemporary German Literature II (5).** Pr., FL 252 or equivalent.
A continuation of 451.
453. **Survey of German Literature (5).** Pr., FL 452 or dept. approval.
The development of German literature from the beginnings through the Age of German Classicism (Schiller and Goethe).
454. **Survey of German Literature (5).** Pr., FL 452 or dept. approval.
A continuation of FL 453. The development of German literature from the Age of Romanticism up to the present.

Italian

241. **Elementary Italian I (5).** Pr., permission of the instructor.
An introduction to the structure of the Italian language, with practice in speaking, understanding, reading, and writing.
242. **Elementary Italian II (5).** Pr., FL 241 or equivalent.
A continuation of FL 241.
341. **Intermediate Italian I (5).** Pr., FL 242 or equivalent.
An introduction to the civilization and the literature of Italy while providing practice in reading and speaking Italian.

Portuguese

261. **Elementary Portuguese I (5).** Pr., permission of the instructor.
An introduction to the structure of the Brazilian language, with practice in speaking, understanding, reading, and writing.
262. **Elementary Portuguese II (5).** Pr., FL 261 or equivalent.
A continuation of FL 261.
361. **Intermediate Portuguese I (5).** Pr., FL 262 or equivalent.
An introduction to Brazilian civilization and Luso-Brazilian literature.

Russian

171. **Elementary Russian I (5).**
An introduction to the Russian language, with practice in reading, understanding, speaking, and writing.
172. **Elementary Russian II (5).** Pr., FL 171 or equivalent.
A continuation of FL 171.
271. **Intermediate Russian I (5).** Pr., FL 172 or equivalent.
An introduction to Russian civilization. Emphasis on acquisition of vocabulary and practice in reading.

GRADUATE COURSES

601. **Linguistic Science (5).** Pr., permission of instructor.
An introduction to the various aspects and areas of linguistic study, including an examination of language distribution, relationships, types, changes and development, and a brief introduction to phonetic structure, grammatical forms, and syntax.
605. **Indo-European Linguistics (5).** Pr., permission of instructor.
An introduction to historical linguistics involving the reconstruction of proto Indo-European and the reflexes in the dialects, especially Latin, Greek, Sanskrit, and Gothic.

Forestry (FY)*

Professors DeVal, Christen, and Hodgkins
Associate Professors Johnson, and Posey
Assistant Professors Beals, DeBrunner, and Larsen

101. **Introduction to Forestry (3).** Fall.
An orientation course for freshmen students. Nature and importance of forestry, wood technology, and the related fields of natural resource management. Employers, compensation, and career ladders in these areas. Nature of professionalism.
104. **Forest Cartography (2).** Lab. 6.
Introduction in the use of drafting instruments, engineering lettering, conventional map signs and symbols and application to planimetric and topographic maps, map design and grids.
105. **Forestry Convocation (0).** Fall, Winter, Spring.
A semi-quarterly forum required of all forestry students except in summer quarters. Visiting lecturers from all segments of federal, state, and private forestry will discuss topics of importance to the forest economy and interest to students.
- 201-2. **Dendrology (3-3).** Lec. 1, Lab. 6. Fall, Winter. Pr., BY 102, or permission of instructor.
Identification, taxonomic and ecological characteristics, and the distribution of important forest trees of the U.S.A. One quarter devoted to Angiosperms and one quarter to Gymnosperms.
203. **Silvics (5).** Lec. 3, Lab. 6. Spring. Pr., AY 305, BY 306, FY 202.
Influence of site factors on the reproduction, growth, development, and characteristics of forest vegetation and the effect of forest cover on the site. The classification of forest vegetation.
204. **Forest Mensuration (5).** Lec. 3, Lab. 6. Fall. Pr., FY 202, CE 201.
Measurement theory; methods and equipment used in measuring trees and stands; units of measure used in forestry; log rules and volume tables; condition class mapping; elementary timber estimating; stand and stock tables.
205. **Wood Identification and Uses (5).** Lec. 3, Lab. 6. Spring. Pr., FY 201 or FY 202.
Identification of the commercial woods of the United States by macroscopic features. Elementary wood anatomy, sufficient to permit an understanding of wood properties and why individual woods are suited to some uses and not to others. Introduction of the student to the major uses of wood. The basic principles of lumber grading.

* The prerequisites may be waived, by permission of the instructor concerned, for junior and senior students in other departments.

206. Wood Measurements (3). Lec. 2, Lab. 3. Winter. Pr., MH 107 or equivalent. Wood measurements oriented toward the needs of students in wood technology. Basic units of measure, log rules and their bases, and log scaling.
302. Forest Fire Control and Use (3). Lec. 2, Lab. 3. Winter. Pr., junior standing. Forest fire protection, including organization, administration of the program, and detection and suppression of fires. Use of fire as a silvicultural tool. Public relations problems.
303. Forest Recreation (3). Lec. 2, Lab. 3. Pr., junior standing. Planning and administration of recreation in forest land management.
309. Sampling (3). Lec. 2, Lab. 3. Winter. Pr., MH 162 or consent of instructor. Basic statistical and sampling concepts and procedures as applied to forestry problems.
310. Advanced Mensuration (3). Lec. 2, Lab. 3. Spring. Pr., FY 309. Statistical decision theory. Stratified sampling, including testing for effectiveness of stratification, allocation of the sample, and sample size. Inventories with probability proportional to size (point sampling). Forest growth and yield. Nature and use of yield tables. Stand projection methods. Growth percent.
311. Wood Technology I (5). Lec. 3, Lab. 6. Fall. Pr., FY 101 and one quarter of Dendrology. Identification of commercial woods of industry by microscopic features. Basic micro-technique. Wood anatomy and properties.
313. Farm Forestry (5). Lec. 3, Lab. 4. Fall, Winter. Pr., sophomore standing. (Not open to students in the degree Forestry curricula.) The place of farm forests in agricultural economy. The application of forestry principles to the problems of the farm woodland, especially as they relate to Alabama conditions.
316. Forest Economics (3). Lec. 3. Winter. Pr., FY 101, AS 202, junior standing. Fundamentals of economics as applied to the business of forestry. Supply, demand and price relationships and predictions for the future. Input-output relationship in production.
330. Forest Products (5). Lec. 3, Lab. 6. Pr., FY 205 or FY 311. Specifications, grading and manufacture of wood products derived from forest lands, including an introduction to pulp and paper manufacture and other chemical and mechanical processes utilizing wood.
390. Field Mensuration (5). Lec. 1, Lab. 12. Summer. Pr., FY 101, FY 204. Practical experience in timber cruising and field application of forest mensuration principles.
391. Forest Engineering (5). Lec. 1, Lab. 12. Summer. Pr., FY 101, CE 201. Road location, staking and computation of cuts and fills. Surveying and mapping of forest properties. Topographic surveying and mapping for recreational purposes.
393. Alabama Forest Industries (3). Lec. 1, Lab. 6. Summer. Pr., FY 101. Inspection and study of logging operations and primary manufacturing of forest products.
396. Forest Site Evaluation (2). Lec. 1, Lab. 3. Summer. Pr., FY 101, FY 203. Theoretical and field training in the classification and evaluation of forest habitats.
397. Forest Regeneration (3). Lec. 1, Lab. 6. Summer. Pr., FY 101, FY 203. Field observation and evaluation of natural and artificial methods of regeneration of forest types, with emphasis on ecological factors.
405. Lumber Grading (3). Lec. 2, Lab. 3. Fall. Theory and practice of lumber grading, including hardwoods and softwoods; yard, structural and forestry grades.
407. Forest Management (5). Lec. 5. Winter. Pr., FY 420, FY 316 and junior standing. General principles applicable to the organization, administration and regulation of forest properties primarily for the production of crops of timber.
408. Logging (3). Lec. 2, Lab. 3. Fall. Pr., FY 101. Logging methods and the factors affecting the costs in each phase of logging. Field practice given in the safe use of mechanical logging equipment.
413. Microtechnique of Hard Materials (5). Lec. 1, Lab. 12. Fall. Pr., FY 311, or permission of instructor and junior standing. Preparation and sectioning of hard materials for microscopic study. Care and use of the sliding microtome and diamond saw, staining, counterstaining, and mounting of sections.
414. Regional Silviculture (3). Lec. 3. Fall. Pr., FY 420 and junior standing. A survey of the principal forest type groups, their site occurrence, growth, value, and current silvicultural problems and practices, of each of the forest regions of the United States.
415. Range Management (2). Lec. 2. Pr., FY 203, or BY 413, and junior standing. Survey of range management as applied to forest properties.
417. Photogrammetry (5). Lec. 3, Lab. 6. Winter. Pr., FY 310 and junior standing. Use of aerial photographs in Forestry. Particular emphasis is placed on specifications for forestry photographs, basic map control, planimetric mapping, form-line mapping, timber type mapping and timber volume estimation.

418. **Advanced Forest Management (3).** Lec. 1, Lab. 6. Spring. Pr., FY 407 and junior standing.
Review of steps and procedures in preparation of management plans; preparation of management plans for selected areas.
420. **Silviculture (5).** Lec. 3, Lab. 6. Spring. Pr., FY 203 or BY 413 and junior standing.
Methods of controlling establishment, composition, growth, and quality of forest stands.
421. **Forest Research Methods (3).** Lec. 2, Lab. 3. Spring. Pr., FY 309 and junior standing.
Review of statistical and sampling methods. Experimental design and analysis of data.
425. **Wood Gluing and Lamination (5).** Lec. 3, Lab. 6. Winter. Coreq., FY 311, Pr., PS 205 and junior standing.
Types and characteristics of woodworking glues. The theory, design, and manufacture of laminates and other glued products. The student will be introduced to research techniques and procedures by pursuing a specific study that will culminate in a comprehensive report.
427. **Forest Valuation (5).** Lec. 5. Fall. Pr., FY 204, FY 316 and junior standing.
Bases and methods of determining the value of stumpage and land. Calculation of taxes on and damages to a forest enterprise. Principles of insurance as applied to a forest enterprise. Computation of financial maturity of trees and stands.
429. **Forest Tree Nursery Management (3).** Lec. 2, Lab. 3. Spring. Pr., FY 397 and junior standing.
Principles and practices applicable to the operation of a commercial forest tree nursery. Soil Management techniques directly related to seedling quality will be stressed.
430. **Wood Technology II (5).** Lec. 3, Lab. 6. Fall. Pr., FY 311, CH 203, PS 205, and junior standing.
Physical and chemical nature of wood substances; wood-liquid relations, thermal and electrical properties, chemical processing of wood.
431. **Wood Technology III (5).** Lec. 3, Lab. 6. Spring. Pr., FY 311, PS 205, and junior standing.
Mechanical properties of wood, factors affecting the strength of wood, principles used in design of wood structures.
432. **Seasoning and Preservation of Wood (5).** Lec. 5. Winter. Pr., FY 311 and junior standing.
Principles and practices of seasoning and impregnation of wood, study of wood destroying agencies.
433. **Seasoning and Preservation Laboratory (2).** Lab. 6. Spring. Pr., FY 432 and junior standing.
Required for wood technology majors only. Laboratory study of techniques and equipment used in the seasoning and impregnation of wood.
434. **Forest Policy (3).** Lec. 3. Fall. Pr., FY 101 and junior standing.
Development of forest policy in the United States against the background of cultural heritages and national economic situations as causative factors. Some time is devoted to several basic considerations important in developing forest policy.
435. **Forest Products Marketing (5).** Lec. 3, Lab. 6. Winter. Pr., FY 101, FY 204 and junior standing.
Introduction to the timber products capable of being harvested from the forest, with special emphasis on the marketing channels through which they move. Work in lumber specifications and log scaling and grading is supplemented by sawmill demonstrations. Special emphasis is placed upon product specifications and comparative prices and production costs.
436. **Forest Watershed Management (5).** Lec. 4, Lab. 3. Pr., FY 203 or BY 413 and junior standing.
Influence of forests and forestry practices upon streamflow.
440. **Farm Forest Management I (3).** Lec.-Dem. 4. Pr., graduate standing.
Field demonstrations to be arranged. Methods of measuring forest products and computing volumes and growth of trees and stands applicable to forest practice on farm woodlots. Methods of thinning, stand improvement, and harvesting, applicable to woodlot management.
450. **Small Woodland Management (5).** Summer. For majors in Education or Agricultural Education, by consent of instructor.
The importance of small forest holdings in the national, regional, and state economies. An evaluation of trends in ownership patterns and their related problems. Characteristics used in recognition of forest stands comprising major forest types. Principles of forest management and their application.

480. Senior Thesis (5). Pr., senior standing.

Study of a problem in the student's area of interest. Will test ability of student to do thorough library research as well as any needed laboratory or field work. A comprehensive report, written in the style of a graduate thesis, is required.

490. Seminar in Forestry (1). Spring. Pr., senior standing.

Advanced study of current literature and recent developments, with written and verbal reports on selected problems. Required of all graduate students in forest management and wood technology and all seniors in the Honors Program.

GRADUATE COURSES**601. Wood Chemistry (5). Lec. 2, Lab. 9. Spring. Pr., FY 430, CH 203.**

Detailed study of the physical and chemical nature of cellulose and modified cellulose and their derivatives. Study of the lignocellulose complex. The chemical analysis of wood.

610. Forest Tree Improvement (5). Lec. 4, Lab. 3. Spring. Pr., ZY 300 or consent of instructor.

Principles of heredity as applied to forest trees and their management. Review of current knowledge in tree improvement. Principles of forest tree breeding. Study and evaluation of activities designed to produce genetically improved trees.

611. Forest Soils (5). Lec. 3, Lab. 6. Fall. Pr., AY 304 or AY 305.

Importance of morphological, physical and chemical properties of forest soils in relation to growth of trees. Classification of forest soils on the basis of productivity. Special emphasis on forest soils in the southern pine region.

617. Forest Inventory (5). Lec. 4, Lab. 3. Winter. Pr., FY 417, FY 310.

Design and analysis of large scale timber volume and growth appraisals, continuous forest inventory and use of electronic computing equipment in forest inventory operations.

640. Farm Forest Management II (3). Lec. 4. Pr., FY 440 and graduate standing.

Organization of the farm woodlot for continuous forest production. Methods of balancing cut and drain, and plans for the efficient administration of the woodlot as a business.

691. Directed Study (1-5). All quarters. Directed Study limited to a maximum of 5 hours in any specified area and to a maximum of 15 hours in all areas as credit towards the Master of Science degree.

Areas of Directed Study: (A) Forest Management, (B) Forest Economics, (C) Forest Sampling, (D) Regression Analysis, (E) Linear Programming, (F) Forest Photogrammetry, (G) Forest Mensuration, (H) Forest Engineering, (I) Forest Soils, (J) Forest Ecology, (K) Forest Genetics, (L) Tree Physiology, (M) Wood Anatomy & Quality, (N) Uses of Wood & Derived Products, (O) Chemistry of Wood Glues, Finishes, & Impregnants, and (P) Timber Physics.

695. Special Problems (3 to 8 hrs.). All quarters.

Study of a special problem in forestry or wood utilization. Such a problem will be of lesser magnitude than a thesis but will test the student's ability to do thorough library research as well as any needed laboratory or field work, and to prepare a comprehensive report on his findings. The work may be spread over more than one quarter, but shall be limited to a total of eight quarter hours.

699. Research and Thesis. Credit to be arranged.**Foundations of Education (FED)**

Interim Head Phillips

Professors Hollaway, and Punké

Assistant Professors Bailey, Carew, Conary, Lauderdale, Phillips, Shantz, and Young

Undergraduate**200. Foundations of Education (4). Lec. 3, Lab. 2. All quarters. Pr., PG 213 or equivalent; Pr., or coreq., PG 214 or equivalent.**

The social, philosophical and historical foundations upon which education is based. Designed to provide the student with an overview of the educational enterprise and a basis for depth study of the areas covered. Laboratory experiences* involving observations and participation in actual work of an elementary or secondary school are provided.

300. Principles and Practices in Education (4). Lec. 3, Lab. 2. All quarters. Pr., FED 200 or equivalent, PG 213 and 214 or equivalent, admission to teacher education.

Purposes of public education in a democracy. Study of curriculum, organization and administration of public education, school personnel, school finance and the school plant. The relation of theory to practice. Lectures, discussion techniques, demonstrations and laboratory experiences* in the public schools.

* See page 99 for complete description.

490. **Evaluation in Education (3).** Lec. 2, Lab. 2. All quarters. Pr., senior standing. Analysis of methods, procedures, and evaluative instruments for determining teaching effectiveness and the attainment of educational goals. Examination of theories and methods of testing, measurement, self-evaluation, and pupil accounting. Techniques, uses and interpretation of educational statistics. Laboratory experiences* in the public schools.

Advanced Undergraduate and Graduate

420. **Educational Sociology (5).** Pr., PG 214 or equivalent, FED 200 or equivalent, junior standing. Analysis of the school as a social institution. Group interaction, formal and informal structure and organization, and the relationship of education to other social institutions.

Graduate

600. **Education in Modern Society (5).** Pr., graduate standing. (Not open to students with credit in ED 635.) Analysis and interpretation of the interaction of historical, philosophical and sociological considerations affecting education in modern society.
601. **Social Foundations of Education (5).** Pr., FED 600. (Not open to students with credit in AD 601.) Man as a social being, an analysis of his relationships, his social inventions, including community organization and structure, mores, value patterns, decision making and their significance for education.
634. **History of Education (5).** Pr., FED 600. The emergence of education as a formal institution, tracing its historical development from early Greek times to the present and emphasizing the historical antecedents which have helped to shape the role and functions of education in Western culture.
636. **Philosophy of Education in America (5).** Pr., FED 600. Major American contributions to the philosophy of education and their influence on educational practice. Need for, and procedures in, reexamining concepts in the light of recent scientific and cultural developments.
637. **Development and Status of Educational Philosophy (5).** Pr., FED 600; FED 636 or consent of department chairman. Development of philosophy of education from the standpoint of its implications for educational practice. Several patterns of thought are considered including supernaturalism, idealism, realism, humanism, communism, existentialism, and experimentalism.
639. **Comparative Education (5).** Pr., FED 600; two quarters of graduate study or consent of department chairman. Comparison among the educational systems of leading foreign countries and the United States, giving attention to the historic origins of different systems and to their present sociological and philosophical significance.
645. **Current Problems in Education (5).** Pr., teaching experience. Interpretation of current issues concerning education. Problems of administration, supervision, curriculum and their relationship to the total educational program are studied.
646. **Studies in Education (1-3).** Pr., one quarter of graduate study. Study of a problem using research techniques, to be selected in consultation with the supervising professor. A problem should be selected which will contribute to the program of the student. (Credit in ED 651 prior to 1960 excludes credit in this course.)
647. **Foundations in Curriculum and Teaching (5).** Development of curriculum patterns and teaching materials reviewed in terms of recent investigations and experimentation; conflicting conceptions of the nature of the curriculum and the sociological, philosophical and psychological implications of these conflicts; methods of curricular reorganization in the elementary and secondary schools.
661. **Research and Experimentation in Education (5).** Emphasis given to research methods, design of experiments, and evaluation; data sources, research planning, elements of scientific method and proposal writing. Current trends in educational research.
671. **Graduate Seminar (5).** Pr., Masters Degree and consent of department chairman. Social issues and their implications for education. Examination of issues using theories and techniques of analysis from the social sciences and other organized disciplines.
672. **Statistical Methods in Education (5).** The need and importance of applying statistical methods to the study of educational problems, statistical methods appropriate to education, and interpretation of meanings of statistical analyses.
673. **Research and Experimental Design (5).** Pr., FED 672. Relationship of design to validity; significance of variables *testing hypotheses, evaluation of research and research findings.

- 675. Advanced Statistical Methods in Education (5).** Pr., FED 672.
Analysis of variance and covariance; correlational analysis and linear regression. Simple and complex factorial designs applied to educational research.

Geography (GY)

Professor Richardson
Assistant Professors Bagwell, and Dorman

- 102. Principles of Geography (5).** Not open to juniors or seniors.
Man and his works in relation to the Earth as a planet, location, climate, land forms, water bodies, minerals, soils, biota.
- 103. Economic Geography (5).** Not open to juniors or seniors.
An elementary, systematic study of distribution and environmental relations of man's principal economic works. Designed primarily for business administration students.
- 201. Weather and Climate (5).** Pr., sophomore standing.
Weather and climate, their causes and controls. Characteristics and distribution of world climates with their economic and social effects.
- 301. Geo-Political Basis of World Powers (3).** General elective. Pr., junior standing.
The interaction between the natural-physical environment and the international activities of world powers. Emphasis is placed upon the changing geographic and economic patterns in world affairs.
- 303. Geography of the Soviet Union (3).** General elective. Pr., junior standing.
The physical and human geography of the U.S.S.R. and its role in international affairs.
- 304. Geography of South America (5).** Pr., junior standing.
A regional survey of economic and social developments, resources and products.
- 305. Geography of North America (5).** Pr., junior standing.
Human-use regions, resources, social and economic developments will be studied.
- 306. Geography of Europe (5).** Pr., junior standing.
The influences of climate, surface features, and natural resources on the distribution of peoples, their industries and routes of trade. Consideration will be given to each country within its regional setting and to the relationship of Europe to the remainder of the world.
- 307. Geography of Asia (5).** Pr., junior standing.
Climate, topography, and natural resources and their influence upon the distribution of peoples, their industries and commerce.
- 308. Geography of Africa (5).** Pr., junior standing.
The principal regions of Africa with particular emphasis on the areas and countries of greater economic and international importance.
- 404. Physical Geography of the World (5).** Pr., senior standing.
Selected elements of physical geography. Soil, water, minerals, flora and fauna will be studied.
- 405. Cultural Geography of the World (5).** Pr., senior or graduate standing.
The influence of physiographic factors in the social, economic and political development of peoples and states.
- 407. World Resources and Their Utilization (5).** Pr., junior standing.
The world's principal natural resources are studied primarily from the geographic point of view (location, transportation, topography, water supply, power sources, climate, etc.).
- 410. Geography of Alabama (5).** Pr., junior standing.
The geographic characteristics of the State.
- 650. Geography Seminar (5).** Pr., graduate standing or consent of instructor.
Designed for students engaged in intensive study and analysis of problems in geography.

Health, Physical Education and Recreation (PE)

Head Professor Fourier
Professors Land, Means, and Umbach
Associate Professors Evans, Fitzpatrick, and Young
Assistant Professors Dragoin, Martincic, Puckett, Rosen, and Turner
Instructors Barrington, Bengtson, Branham, Bridges, Chapman*, Davalos, Hill, Kent, Nix*, Pruett, Siniard*, Van Etten*, Waldrop, Zarcone*, and Washington*
*Visiting Professor Francis**

The instructional program of the Department of Health, Physical Education, and Recreation comprises (1) courses in physical education for all students, (2) courses

*Temporary.

for the major and minor in health and physical education, and (3) professional courses for students in preparation for teaching.

In satisfying the six-quarter requirement in Physical Education, unless deferment is recommended by the student's Dean, all undergraduate students under 26 years of age must register for physical education in the first and succeeding quarters of residence until this requirement has been met. Any deficiencies in physical education incurred at Auburn University and/or elsewhere before the student reaches age 26 must be cleared prior to graduation. Only one credit per quarter is permitted or transferable to meet the six-quarter requirement.

Course Requirements (Men). First quarter freshmen with "A" classification are required to take PE 100. Students placed in the "B" health classification may be required to take PE 100, depending upon their physical disability.

In order to receive a well-rounded program of activities, students are required to pass one course in each of the areas listed below. Successful completion of intermediate swimming is required of all men students. However, if a student must take two swimming courses to meet the aquatic requirement, he may omit one course in any area except Fundamentals.

Area Requirements (Men).—Fundamentals, Team Sports or Rhythms, Individual Sports, Combative Sports, Aquatics**, and Gymnastics.

Varsity Sports (Men).—A student who has received credit for varsity athletics may not repeat the same area in physical education activities.

Course Requirements (Women).—Swimming**

Health Science (Women).—Three hours required of freshmen women. Health Science 110, 3 credits, is recommended although 111, 112, and 113 will satisfy requirement.

Credit.—All courses carry one quarter hour credit per quarter (maximum of six quarter hours allowed on degree). No duplication of courses is permitted except in varsity sports, or for students who have health classifications of "C".

Course No.	Course No.
Fundamentals	Individual Sports
100.....Basic Physical Education	150.....Angling
Adaptive	151-152.....Archery
105.....Sports Education	153-154.....Badminton
Aquatics	155-156.....Bowling
120.....Beginning Swimming	157-158.....Golf
220.....Intermediate Swimming	159.....Camping
222.....Synchronized Swimming	160.....Recreational Sports
223.....Senior Life Saving	161.....Family Recreation
320.....Water Safety	162.....*Rifle Marksmanship
Combative Sports	163-164.....Tennis
130.....Boxing	165.....Track
131.....Fencing	166.....Weight Training
132.....Wrestling	168.....Basic Equestrian
134.....Judo	357.....Varsity Golf
332.....Varsity Wrestling	363.....Varsity Tennis
Gymnastics	365.....Varsity Track
140.....Apparatus	366.....Varsity Cross Country
141.....Trampoline	Team Sports
142-143.....Tumbling	180-181.....Basketball
Rhythms	182-183.....Soccer
170-171.....Folk Dance	184-185.....Softball
172-173.....Contemporary Dance	186.....Speedball
174-175.....Tap Dance	187.....Touch Football
176-177.....Social Dance	188-189.....Volleyball
178.....Ballet	380.....Varsity Basketball
	384.....Varsity Baseball
	387.....Varsity Football

110. Health Science (3).

Basic understanding concerning sound health practices and protection. Physical, mental, and social aspects of personal and community health are considered.

* Open to students in Air, Army and Navy ROTC.

** Students currently certified as Water Safety Instructors by the American Red Cross are exempt from this requirement.

111-112-113. Health Science (1-1-1).

(111) Concepts related to health and college life, nutrition, maintaining the body, and consumer health choices; (112) mental health, stimulants and depressants, family living, and chronic-degenerative diseases; (113) community health problems, communicable diseases, and safety education.

Courses for the Major and the Minor

- 106. Developmental Activities: Theory and Techniques (2).** Lec. 1, Lab. 4.
Body mechanics, calisthenics, movement fundamentals, weight training.
- 133. Combatives: Theory and Techniques (2).** Lec. 1, Lab. 4.
Boxing, fencing, and wrestling.
- 167. Individual and Dual Sports: Theory and Techniques (2).** Lec. 1, Lab. 4.
Archery, badminton, bowling, golf, and tennis.
- 190. Apparatus and Tumbling: Theory and Techniques (2).** Lec. 1, Lab. 4.
Apparatus, stunts, tumbling, pyramids, and trampoline.
- 191. Team Sports: Theory and Techniques (2).** Lec. 1, Lab. 4.
Basketball, field hockey, soccer, softball, speedball, and volleyball.
- 201. Introduction to Physical Education (5).** Lec. 5. Fall, Winter, Spring.
An introduction to the field of physical education from the earliest periods to the present. Emphasis is placed on the physical, biological and psychological principles of physical education.
- 202. Basketball (Men) (3).** Lec. 2, Lab. 2. Fall.
The fundamental skill techniques of basketball—offense, defense, and strategy.
- 206. Football (Men) (3).** Lec. 2, Lab. 2. Winter.
The fundamentals of football and the different types of offense, defense, team strategy and generalship.
- 212. Elementary School Activities (3).** Lec. 2, Lab. 2.
A survey of physical education activities suitable for use in the first six grades including teaching devices.
- 214. Kinesiology (5).** Lec. 5. Pr., VM 220-221, PS 204.
- 221. Aquatics: Theory and Techniques (2).** Lec. 1, Lab. 4.
Water sports, scuba diving, operation and maintenance of pools.
- 278. Social and Folk Dance: Theory and Techniques (2).** Lec. 1, Lab. 4.
Basic skills, fundamental knowledge and appreciation of social and folk dance.
- 280. Basketball Officiating (1).** Lab. 3.
Discussions, practices, and leadership experiences.
- 284. Softball Officiating (1).** Lab. 3.
Discussions, practices, and leadership experiences.
- 288. Volleyball Officiating (1).** Lab. 3.
Discussions, practices, and leadership experiences.
- 301. Recreation Leadership (5).** Lec. 5. Winter, Summer.
- 302. Alcohol, Narcotics, and Tobacco (3).**
Investigation of stimulants and depressants with special emphasis on alcohol, narcotics, and tobacco. The effects of these substances on the human body and the social, economic, and community problems associated with their use.
- 303. Baseball (3).** Lec. 2, Lab. 2.
Offensive and defensive strategy, pitching, catching, infielding, outfielding, batting and baserunning.
- 304. Track and Field (3).** Lec. 2, Lab. 2.
Fundamental skills and techniques of track and field athletics. The organizing and conducting of track meets.
- 311. Conduct of Dance for High School and Recreation Programs (3).** Lec. 2, Lab. 3. Pr., completion of PE 278 or equivalent.
Providing experiences in analyzing, selecting and presenting dance for high school and recreation programs.
- 312. Theory and Conduct of Team Sports for Women (3).** Lec. 2, Lab. 3.
A study of lead-up games, skill techniques, rules, and skill tests; practice and application of the skills and principles of team sports.
- 313. Theory and Conduct of Individual and Dual Sports (3).** Lec. 2, Lab. 3.
Skills, techniques, rules, and skill tests; practice and application of the skills and principles of individual and dual sports.
- 314. Theory and Conduct of Gymnastics (3).** Lec. 2, Lab. 3.
Skills and techniques for teaching apparatus, stunts, and tumbling.

316. **Tests and Measurements (3).**
Analysis, administration, and interpretation of tests and measurements in health, physical education and recreation.
317. **School Health and Health Education (5). Lec. 5.**
Basic scientific health knowledge and its application to the school program. Includes principles, materials, and techniques of health education in elementary and secondary schools.
318. **Principles of Recreation (5). Lec. 5.**
The significance and meaning of leisure; theories of play; the recreation movement in the United States. Principles of program planning and development at state and local levels of government, in schools and in industry.
319. **Outdoor Recreation (5). Lec. 5.**
Outdoor recreation in the United States. Includes principles of planning for recreational use of open land, forests, farms and water.
370. **Dance Survey (3). Lec. 2, Lab. 3. Pr., completion of two or more dance courses, or permission of the instructor.**
The course explores styles and types of dance through the ages in relation to music, drama, architecture and art. The lecture-laboratory permits participation beyond the service course level and lecture and theory of dance.
372. **Dance Production and Rhythmic Demonstrations (3). Lec. 2, Lab. 3.**
Apprenticeship in the fundamentals of producing dance programs, exhibitions of physical activity and festivals.
401. **Organization and Administration (5). Lec. 5. Fall and Spring. Pr., senior standing.**
Administration of intramural and physical education activities; also the construction and care of the physical education plant and departmental organization.
404. **Athletic Injuries, First Aid and Safety (5). Lec. 4, Lab. 2.**
Athletic injuries as to care, prevention, and correction. Developing the knowledge, skills, and techniques of first aid leading to an Instructor's rating in First Aid.
405. **Physiology of Muscular Activity (3). Pr., VM 220-221.**
Inter-relationships of muscular activity and physiological variations.
416. **Adaptive Physical Education (3). Lec. 3. Spring. Pr., PE 214, VM 220 and 221.**
Review of anatomy, physiology, and psychology pertaining to special programs of physical education for the temporarily and permanently handicapped, with laboratory practice in posture training and remedial gymnastics.

Advanced Undergraduate and Graduate

409. **Advanced Health Science (5). Pr., junior standing.**
Principles and concepts basic to the improvement of individual and group living and the role of the home, school, and community in the development of sound physical and mental health.
419. **Current Problems in Health Education (5). Pr., consent of instructor and junior standing.**
A critical analysis of the problems, issues, and trends in health education.

Graduate

619. **Scientific Principles Applied to Physical Education and Athletics (5). Pr., undergraduate major or minor in health and physical education.**
Specific application of physics, physiology, and psychology to the development of physical skills and related topics including reaction time, motivation, maturation, illusions, morale, and problems of group social living in physical education and athletics.
626. **Physical Fitness, A Critical Analysis (5). Pr., VM 220-221 or departmental approval.**
Critical analysis of physical fitness objective of physical education through inquiry into current research in medicine, physiology of muscular activity, and physical fitness appraisal and guidance.
651. **Research Studies in Health and Physical Education (5). Pr., 18 hours of appropriate subject matter and 36 hours of psychology, and professional education.**
Review, analysis, and interpretation of available research with emphasis on designing new research to meet the changing needs of the school.
669. **Physiology of Exercise (5). Pr., undergraduate major or minor in health and physical education.**
Experiences in the physiology of muscular activity and application of these to physical education and athletic situations.
699. **Thesis Research. (Credit to be arranged). May be taken more than one quarter.**

Professional Courses

Undergraduate

101. Orientation: Personal and Professional (3).

Helps transfers from other curricula and students enrolled in other schools achieve optimum personal, social and intellectual development as college students; assists them in understanding teaching as a profession. (Students sectioned by area of specialization.) (Credit in PE 101 excludes credit in PE 102-3-4.)

102-3-4. Orientation: Personal and Professional (1-1-1).

Helps freshmen achieve optimum personal, social, and intellectual development as college students and assists in planning professional careers. (Students sectioned by area of specialization.) (Credit in PE 102-3-4 excludes credit in PE 101.)

414. Teaching in Health and Physical Education in Elementary and Secondary Schools (3). Lec. 2, Lab. 2. Pr., 9 hours of Psychology, FED 200 or equivalent; Pr., or coreq., FED 300 or equivalent.

(For description, see page 242.)

423. Program in Health and Physical Education in Elementary and Secondary Schools (3). Lec. 2, Lab. 2. Pr., 9 hours of Psychology, FED 200 or equivalent; Pr., or coreq., FED 300 or equivalent.

(For description, see page 242.)

Undergraduate students with a major in health, physical education and recreation will pursue a minor selected from some other teaching area in the secondary school program or in one of the areas included in the twelve-grade program. (For appropriate course in Teaching or Program, see SED, page 276, IED, page 242, and VED, page 286.)

425. Student Teaching in Health and Physical Education in Elementary and Secondary Schools (10 or 15). Lec. 5, Lab. 20. Pr., 9 hours of Psychology, FED 200 or equivalent; FED 300 or equivalent, two courses in Teaching and Program, and junior or senior standing.

(For description, see page 242.)

429. Problems of Health Education and Health Observation of School Children (5). Pr., junior standing.

Helps the teacher with the details of health observation, aids in health guidance of individual pupils, acquaints the teacher with the health services available through local and state departments.

Graduate

The following courses are organized and taught on a twelve-grade basis:

646. Studies in Education (1-3). Pr., one quarter of Graduate study.

A problem using research techniques to be selected in consultation with the supervising professor. A problem should be selected which will contribute to the program of the student. (Credit in ED 651 prior to 1960 excludes credit in this course.)

652. Curriculum and Teaching in Health and Physical Education in Elementary and Secondary Schools (5). Pr., 18 hours of appropriate subject matter and 36 hours of psychology and professional education.

Teaching practices and reappraisal of selecting experiences and content for curriculum improvement.

653. Organization of Program in Health and Physical Education in Elementary and Secondary Schools (2-5). Pr., 18 hours of appropriate subject matter and 36 hours of psychology and professional education.

Advanced course. Program, organization, and development of basic and supplementary materials for guiding teachers, faculties, and school systems in the continuous improvement of curriculum and teaching practices.

654. Evaluation of Program in Health and Physical Education in Elementary and Secondary Schools (2-5). Pr., 18 hours of appropriate subject matter and 36 hours of psychology and professional education.

Evaluation and investigation of teaching effectiveness with attention also given to the utilization of human and material resources and the coordination of health and physical education with the total school program and with other educational programs of the community.

History (HY)*Head Professor McMillan**Research Professor Rea**Professors Ivey, and Partin**Associate Professors Belser, Harrison, Johnson, Owsley, Reagan, and Williamson**Assistant Professors Davis, Eaves, Henson, Jones, McNorton, Metzger,**Newton, and Roberson**Instructors Alexander, Atkins, Faile*, Latimer*, M. Newton*, Olliff, and Salzmann**

- 101. History of the United States (5).**
The history of the U.S. to 1865. Required of majors and minors in the Social Sciences in the School of Education.
- 102. History of the United States (5).**
The history of the U.S. since 1865. Required of majors and minors in the Social Sciences in the School of Education.
- 105-205-305-405. Current Events (1).**
The events of the world today based on current periodicals.
- 107. United States History (5).**
The United States since the Civil War with some emphasis on the ante-bellum origins of issues. Credit for this course excludes credit for HY 102.
- 204. History of the Modern World (3). General elective. (Credit in History 208 excludes credit for this course.)**
Major periods of modern history and the factors contributing to the modern world civilization. Primarily intended for students in Engineering curricula.
- 207. World History (5). Pr., sophomore standing.**
The leading events in World History from ancient times to 1648.
- 208. World History (5). Pr., sophomore standing.**
The leading events in World History from 1648 to the present.
- 300. Introduction to Latin American History (5). Pr., sophomore standing, 10 hours of history (207 and 208 suggested).**
A survey of Latin American civilizations to the present with emphasis on the Colonial Period.
- 301. Introduction to Far Eastern History (5). Pr., sophomore standing, 10 hours of World History.**
A brief survey of the major cultural and institutional developments of the area.
- 311. Medieval History (5). Pr., junior standing.**
Europe from the fall of the Roman Empire to the Age of Discovery.
- 315. International Organization (3). General elective. Pr., junior standing.**
The evolution of international organization from the beginning through the United Nations.
- 322. The United States in World Affairs (3). General elective. Pr., junior standing.**
The influence which the United States has exerted in international affairs. (Excludes credit for HY 421.)
- 371. History of the West (5) Pr., sophomore standing.**
The development of the West and of its influence on American history.
- 381. History of Alabama (5). Pr., sophomore standing.**
A brief history of Alabama from the beginning to the present.
- 400. American Colonial History (5). Pr., junior standing, HY 101 or 107.**
The political, economic and social history of the colonies from their founding to the end of the French and Indian War, 1763.
- 401. The American Revolution and the Confederation, 1763-1789 (5). Pr., junior standing and HY 101 or 107.**
The new British Colonial policy, the War for Independence and the first federal constitution and the movement to replace it.
- 402. Federalist and Jeffersonian America, 1789-1815 (5). Pr., junior standing and 101 or 107.**
The establishment of the new federal government, the origins of American political parties, and the role of the United States in the French Revolutionary and Napoleonic Wars.
- 403. The American System and Jacksonian Democracy, 1815-1850, (5). Pr., junior standing and HY 101 or 107.**
Nationalism, sectionalism, egalitarianism and expansion.

* Temporary.

404. **The Civil War (5). Pr., junior standing and HY 101 or 107.**
A study of the sectional controversy from the Compromise of 1850 to the beginning of hostilities in 1861, and of the military, economic, social, and political aspects of the war.
405. **The Reconstruction Period (5). Pr., junior standing and HY 101 or 107.**
An analysis of the social, economic and political aspects of the years 1865-1877.
406. **Recent United States History, 1877-1914 (5). Pr., junior standing and HY 102 or 107.**
A study of the political, economic, diplomatic, social and cultural development of the United States.
407. **Recent United States History, 1914-1932 (5). Pr., junior standing and HY 102 or 107.**
Political, economic, and social development of the United States.
408. **Modern America, 1932 to the Present (5). Pr., junior standing and HY 102 or 107.**
Political, economic, and social development of the United States.
409. **United States Diplomacy to 1890 (5). Pr., junior standing and HY 101 or, 102 or, 107.**
Chief events in our relationships with foreign powers from the Revolutionary War to 1890.
410. **United States Diplomacy Since 1890 (5). Pr., junior standing and HY 102 or 107.**
The emergence of the United States from a hemispheric power to a total involvement in world affairs.
411. **Social and Intellectual History of the United States to 1876 (5). Pr., junior standing and HY 101 or 107.**
Selected areas of American thought are studied in their social context, ranging from Puritanism to the impact of Darwinism on the American mind.
412. **Social and Intellectual History of the United States Since 1876 (5). Pr., junior standing and HY 102 or 107.**
An examination of major intellectual movements in American society from social Darwinism to Progressivism and its legacy.
413. **The South to 1865 (5). Pr., junior standing and HY 101 or 107.**
The origins and growth of distinctive social, economic, cultural and ideological patterns in the South with emphasis on period 1815-1860.
414. **The South Since 1865 (5). Pr., junior standing and HY 102 or 107.**
Major trends in the South since the Civil War with emphasis on social, economic, cultural and ideological development.
420. **History of Russia (5). Pr., junior standing.**
The Russian people from early times to the present. Particular emphasis is laid on present domestic institutions and foreign policy.
426. **The Reformation Era, 1500-1600 (5). Pr., junior standing and HY 207.**
Europe during the Protestant and Catholic Reformations, overseas discovery, and political developments in the age of Charles V, Henry VIII, Elizabeth and Philip II.
427. **The Seventeenth Century (5). Pr., junior standing and HY 207.**
Emphasis on the Thirty Years' War, Scientific Revolution, overseas colonization and European political developments in the age of Louis XIV.
428. **The Age of Reason, 1715-1789 (5). Pr., junior standing and HY 208.**
A history of Europe from the Age of Absolutism to the collapse of the Old Regime.
429. **The Age of Revolutions, 1789-1870 (5). Pr., HY 208 and junior standing.**
The forces of change and continuity from the French Revolution to emergence of the Bismarckian world order.
430. **History of Europe from Bismarck through the First World War (5). Pr., HY 208 and junior standing.**
The political, diplomatic, social and cultural development of Europe from the era of Bismarck to the European collapse. (Offered alternate years with HY 431.)
431. **History of Europe Since the Treaty of Versailles (5). Pr., HY 208 and junior standing.**
Emphasis on the rise to totalitarianism, the Second World War, and the post-war period. (Offered alternate years with HY 430.)
450. **History of China (5). Pr., junior standing and HY 301.**
A more intensive study of China emphasizing its dominant role in the Far East.
451. **Japan and Southeast Asia (5). Pr., junior standing and HY 301.**
A more intensive study of the cultures of Eastern Asia emphasizing the impact of the West in the recent period.

452. The Caribbean Area (5). Pr., junior standing and HY 300.
An analysis of the Caribbean as to its geographic, cultural, and strategic importance from 1492 to the present.
453. Modern South America (5). Pr., junior standing and HY 300.
Colonial background and the cultural development of 19th and 20th century South America.
454. History of Mexico (5). Pr., junior standing and HY 300.
An analysis of the unique cultural development of Mexico.
460. Great Leaders of History (5). Pr., junior standing.
A study of some world leaders and their relationship to the great movements of history.
471. History of Medieval England (5). Pr., junior standing and HY 207.
A survey of English origins and institutions to the 17th century.
472. History of Modern England (5). Pr., junior standing and HY 208.
A survey of British history since the 17th century.

GRADUATE COURSES

600. Seminar in American History, 1763-1800 (5).
601. Seminar in American History, 1800-1850 (5).
602. Seminar in American History, 1850-1876 (5).
603. Seminar in American History, 1876-1914 (5).
604. Seminar in American History, 1914- (5).
605. United States Far Eastern Diplomacy (5).
606. United States Latin American Diplomacy (5).
607. United States Atlantic Diplomacy (5).
608. Seminar in American Social and Intellectual History (5).
609. Seminar in the Old South (5).
610. Seminar in the New South (5).
611. Seminar in State and Local History (5).
629. Historical Methods (5).
634. History of Revolutions (5).
635. Seminar in European History (5).
636. Colonial Latin America (5).
637. Latin America in the National Period, Revolutionary Movements and National Developments (5).
639. Historiography and Theory of History (5).
640. Seminar in Tudor and Stuart England (5).
641. Seminar in 18th Century England (5).
650. Cultural and Institutional Foundations of World History (5).
699. Research and Thesis (5).

READING COURSES

The following reading courses are offered in order to give the graduate student an opportunity for study in specialized areas and are rigorously supervised by the professors responsible for the fields. Registration is by permission of the department and the major professor.

620. Directed Reading in American History to 1876 (5).
621. Directed Reading in American History Since 1876 (5).
622. Directed Reading in American Diplomacy (5).
623. Directed Reading in American Social and Intellectual History (5).
624. Directed Reading in Latin American History (5).
625. Directed Reading in Far Eastern History (5).
626. Directed Reading in English History (5).
627. Directed Reading in European History (5).

Political Science (PO)

For listing of courses see page 271.

Home Economics (HE)*Acting Dean Mildred S. Van de Mark**Professors Davis, Hodson, Rose, and Van de Mark**Associate Professors Caudle, Chastain, Douty, Layfield, Prather, Spencer, and White**Assistant Professors Cannon, Current-Garcia, Hilton, Hinton, Lorendo, Morrill, Morton, and Rush**Instructors Bourne, Hoffman, Schafer, and Smith***Professional Courses****110-11-12. Freshman Orientation (1-1-1). Fall, Winter, Spring.**

This course will include personal and health problems; philosophy of Home Economics; professional opportunities in Home Economics.

104. Related Art (5). Lec. 2, Lab. 6. Each quarter.

A study of related elementary art and design. Emphasis is placed on the application of art study to the home.

301. Audio-Visual Education in Home Economics (3). Lec. 3. Pr., junior standing in Home Economics.

A study of the use and development of illustrative and demonstration materials in the fields of interest to home economists.

304. Home and Family Life (3). Lec. 3. Each quarter.

Male and female roles in mate choice, marriage adjustment, parenthood and marriage problems. Open to men and women.

306. Personal Appearance and Social Interaction (3). General elective. All quarters.

Good grooming, its contributing factors and their influence on social and business relations.

401. Extension Organization and Methods (5). Spring, Summer.

History, organization, and program planning of extension and educational methods of communication.

421. An Evaluation of the Major Field (5). Pr., junior standing.

An evaluation of the possibilities of the major field and the working techniques involved in some of the positions available.

431. Senior Seminar (3). Fall, Spring. Pr., junior standing and a major in Home Economics.

Required for all Home Economics majors. Survey and discussion of recent studies on opportunities and responsibilities for careers in Home Economics; analysis of characteristics, abilities, and skills necessary for success.

Graduate Courses For All Majors**421. An Evaluation in the Major Field (5).**

(See description carried in undergraduate listing.)

601-2. Seminar in Home Economics (5-5).

Students make reports on the recent literature in the field of home economics. Seminar may be taken in any department; child development, clothing and textiles, family economics, family life, foods and nutrition, or home management.

603-4. Administration in Home Economics (5-5).

A study of administrative policies and procedures dealing with staff, personnel, curricula, student guidance, current trends, new legislation in education, budget implications, and program evaluation. This study is developed through lectures, group discussions, visitations to educational projects, and by visiting administrators.

605. Methods of Research in Home Economics (3).

A study of research and investigation methods applicable to the various areas of Home Economics.

609. Research Studies in Home Economics (2-5).

Independent, advanced work on an approved project under the supervision of a professor in the student's chosen field of study.

651. Audio-Visual Aids in Home Economics (5).

This course is designed to aid home economists in analyzing, evaluating, organizing, and accumulating illustrative materials.

699. Research and Thesis. Credit to be arranged.

Required of all students under the Thesis Option in any field.

Clothing and Textiles

105. **Fundamentals of Clothing (5).** Lec. 2, Lab. 8.
Basic theories and principles of garment selection and structure including their application in construction of apparel for personal use.
205. **Clothing for the Family (5).** Lec. 3, Lab. 6. Each quarter. Pr., HE 105 or equivalent.
Problems in wardrobe management to meet the needs of all family members with reference to budgetary factors, individual differences, developmental influence on needs, and consumer selection in the market. Application of fundamental principles in making of garments for family members involving advanced and challenging problems.
215. **Clothing Design (5).** Lec. 2, Lab. 6. Fall, Spring. Pr., HE 104, 105.
A study of color, line, form and texture as a basis for designing apparel.
225. **Textiles (5).** Lec. 4, Lab. 2. Pr., CH 103.
A study of fibers, yarns, fabrics and finishes in their relationship to apparel and household fabrics.
305. **Tailoring (3).** Lab. 9. Winter, Summer. Pr., HE 205, junior standing.
Consists of selection of fabric and tailoring of a suit or coat.
315. **Textiles (5).** Lec. 3, Lab. 4. Fall Pr., CH 103, 104.
The principal aim of the course is the development of sound judgment in the selection of textiles for personal and household use.
325. **Fundamentals of Retailing (5).** Winter. Pr., EC 200, junior standing.
A study of the practices and policies of retail stores.
335. **Retail Training (8).** Fall. Pr., HE 325.
Three months practical experience with pay in large department store. Students are given formal instruction and supervision. Scheduled only by pre-arrangement.
345. **Creative Crafts (1-2-3).** Lab. 9. General elective. Each quarter.
A study of design and execution of creative crafts; viz., metal work, leatherwork, ceramics, weaving, fabric decoration.
355. **Consumer Textiles (3).** Lec. 3. General elective. Fall, Winter, Spring.
A study of textile fabrics, finishes, and trade practices with special emphasis on consumer problems.
365. **Creative Metalwork and Mosaics (1-3).** Lab. 9. General elective. Fall quarter.
A study of design and experience in executing work in the areas of creative metalwork, jewelry, enameling, and/or mosaics.
375. **Creative Ceramics (1-3).** Lab. 9. General elective. Winter quarter.
A study of and experience in working with various clays, building processes, ceramic glazes, and ceramic design.
385. **Creative Weaving, and Fabric Decoration (1-3).** Lab. 9. General elective. Spring quarter.
Creative experiences in the design of and various ways to decorate fabric, such as creative stitchery, block print, stencil, batik, dyeing; or a study of weaving design and experiences in selecting yarns, setting up a loom, and weaving one's own fabric.
395. **Clothing Design (5).** Lec. 2, Lab. 6. Fall, Spring. Pr., HE 104, 105.
A study of color, line, form and texture as a basis for designing apparel.
405. **Creative Costume Design (5).** Lec. 2, Lab. 9. Spring. Pr., junior standing, HE 395, and two quarters of clothing construction.
Creative experience in development and execution of apparel designs through draping of varied fabrics on individualized body structures. Exploration and application of theories and philosophies and practices of contemporary designers.
415. **History of Textiles (5).** Lec. 5. Pr., elementary art and junior standing.
A study is made of the development of the textile industry and of fabric design from the earliest times to the present day.
425. **History of Costume (5).** Lec. 5. Pr., elementary art and junior standing.
A study of the outstanding historic modes in dress for men and women from early times to the present day.
435. **Textile Testing (5).** Lec. 2, Lab. 6. Winter. Pr., HE 315 or equivalent.
Standard testing procedures and equipment used in determining the physical and chemical characteristics of fibers, yarns, and fabrics, and of the statistical methods employed in data evaluation.
445. **Fashion Merchandising (5).** Lec. 5. Pr., HE 325, or consent of instructor.
Principles and practices of merchandising in relation to problems of retailing fashion goods. Consideration of the consumer as a major factor in planning merchandise assortments and presentation.

GRADUATE COURSES

- 650. Flat Pattern Designing (5). Pr., 15 quarter hours undergraduate clothing.**
A study of commercial methods of pattern making. Developing a foundation pattern from which to design and cut garments. Attention is given to variations from the norm of human body measurements and to the need for further research in designing for various age groups.
- 652. Clothing and Textiles Literature (5).**
A study of written material in the field of Clothing and Textiles with special emphasis on current periodicals, pamphlets, and reports of recent research. Required of all candidates for the master's degree in Clothing and Textiles.
- 653. Economics of Clothing Consumption (5). Pr., EC 200, HE 205.**
A critical examination of the literature on Clothing and Textiles economics, modern trends in manufacture and distribution and labor laws and their influence on clothing.
- 655. Problems in Home Decoration (5).**
The undergraduate course, HE 313, is used as a basis for advanced work along the same lines. Problems in valuing choice of materials and arrangements of exteriors as well as interiors of the home are made the topic of minor research.
- 656. Speed Techniques in Clothing Construction (5). Lec. 2, Lab. 6. Pr., 10 quarter hours undergraduate clothing.**
A study of recent trends toward rapid fabrication of apparel and of the problems and possibilities of bringing commercial methods into the home or classroom. Applied research in comparative methods of clothing construction.
- 657. Detergency and Cotton Textiles (5). Pr., HE 315 or equivalent.**
A study of the chemical relation of detergents, water, bleach, and mechanical action to cotton fibers (cellulose).
- 658. Chemical and Physical Analysis of Textiles (5). Pr., HE 315 or equivalent.**
The study and application of the theory of A.S.T.M., A.A.T.C.C., and other standardized procedures.
- 659. Modern Fibers and Fabrics (5). Pr., HE 315 or equivalent.**
A study of textiles as they actually are and an evaluation of the individual properties and characteristics peculiar to all fibers.
- 667. Clothing: Its Social and Psychological Aspects (5). Pr., basic courses in Sociology, Psychology, and consent of the instructor.**
A critical examination of theory and research concerning clothing as a factor in the physical, social and psychological environment of man, and man's response to and use of clothing as an aspect of his individual behavior and his culture.

Family Life and Early Childhood Education

- 207. Principles of Child Development (3). Lec. 2, Lab. 2. Each quarter.**
Introduction to principles of growth and development, with emphasis on infant development. Students observe in the Child Study Laboratories and other situations involving young children.
- 307. Growth and Development of Children (5). Lec. 3, Lab. 6. Pr., PG 211, SY 201.**
A study of the mental, physical, social and emotional growth and development of children with emphasis on the early years. Students observe and participate in the care of children in the child study laboratories.
- 417. Guidance of Children (5). Lec. 3, Lab. 6. Pr., HE 407, and junior standing.**
A study of the environmental factors affecting the development of children in the home and community. Emphasis is given to principles and methods of guidance. Students participate in the guidance of the children in both the nursery school and kindergarten.
- 437. Teaching Methods in Preprimary Education (5). Lec. 3, Lab. 6. Pr., junior standing.**
A detailed study of the organization and management of a nursery school and kindergarten, including selection of equipment. Special units of work will be given in reading and story telling, nature, music, art, and construction of play materials for children.
- 447. Directed Teaching in Preprimary Education (5). Lec. 2, Lab. 9. Pr., junior standing and HE 437.**
An advanced course for majors in Nursery School and Kindergarten Education. The student will spend the equivalent of three mornings in the laboratory each week with increased responsibility for the guidance of children under supervision of the staff.
- 457. Family Relationships (5). Fall, Spring.**
A study of interpersonal relationships among family members, with attention to human development, training and guidance of children.

GRADUATE COURSES

670. **Personality Development (5).**
A general study of personality and the factors which influence development.
672. **Parent Education (5). Lec. 3, Lab. 4. Pr., HE 407.**
Group and individual conferences with parents.
675. **Pre-School Guidance (5). Lec. 3, Lab. 4-6. Pr., HE 407.**
An application of methods and techniques of guidance in laboratory groups of pre-school children.
676. **The Family and Its Relationships (5).**
Intensive study of the family and its effect upon personality development.
677. **Readings in Family Life and Child Development (5).**
Study and evaluation of current literature and research concerning the pre-school child; the school-age child; the adolescent; the young adult; problems of later maturity; changing family patterns.
678. **Advanced Child Development (5). Pr., HE 407.**
An intensive and extensive study of growth and development of children with emphasis upon environmental and developmental factors affecting growth and development and implications for guidance. Laboratory experiences where needed.
679. **Group Approaches to Family Problem Solving (5). Pr., HE 670 and HE 676, or approval of professor.**
A study of the dynamics of the family as a primary group together, with a study of some common family problems. Principles of group interaction in the discussion of family problems.

Foods and Nutrition

102. **Foods and Nutrition (5). Lec. 3, Lab. 4. Each quarter.**
Elements of nutrition and principles underlying the fundamental processes and standards of food preparation.
202. **Meal Management (5). Lec. 3, Lab. 6. Each quarter. Pr., HE 102.**
Planning of meals with emphasis on scientific principles of nutrition, aesthetic value, management of time and the food budget on various economic levels.
302. **Table Service (3). Lec. 3. General elective. Each quarter.**
A study of the accessories used for table service in their relation to each other and to the complete service of meals. Principles of flower arrangements are studied and forms of the different food services in the home.
312. **Nutritional Biochemistry (5). Lec. 4, Lab. 3. Pr., CH 203.**
Chemistry of carbohydrates, fats, proteins, vitamins and minerals applied to human nutrition.
322. **Food Preservation (3). Lec. 1, Lab. 6. Fall and Summer. Pr., VM 311 (Bact.).**
Study of the theory and practice of preservation of foods by fermentation, crystallization, canning and freezing with special emphasis placed in better quality of foods preserved at home.
332. **Nutrition and Dietetics I (5). Lec. 3, Lab. 4. Fall. Pr., HE 312, VM 210.**
Application of the various factors in influencing the body's need for food. For majors in Nutrition or Nursing Science.
342. **Nutrition and Dietetics II (5). Lec. 3, Lab. 4. Winter. Pr., HE 332.**
A continuation of HE 332.
352. **Institution Organization and Personnel Management (5). Lec. 4, Lab. 3. Winter.**
Quality food service operation as related to management principles, methods of control, and personnel management.
362. **Problems in Community Nutrition (3). Pr., HE 372, or equivalent.**
Methods of presenting nutrition information to organizations engaged in community work. Field experience.
372. **Nutrition and Health (3). Lec. 3. General elective. Each quarter.**
Study and application of the fundamentals of human nutrition. Food requirements of different age levels and selection of food at different cost levels are considered. Open to all students except Nutrition or Nursing Science majors.
402. **Diet Therapy (5). Lec. 3, Lab. 4. Spring. Pr., junior standing, HE 332, and HE 342.**
Application of principles of nutrition to various periods of stress and as a therapeutic aid in treatment of disease.
409. **Family Nutrition (5). Lec. 5.**
Principles of Nutrition as related to the well-being and needs of family members at all age levels.

412. **Quantity Food Production (5).** Lec. 3, Lab. 4. Fall. Pr., junior standing and HE 202.
Institutional menu planning, preparation and serving of foods. Use, operation and maintenance of equipment. University kitchens are used for laboratory experience.
422. **Institution Food Purchasing (5).** Lec. 4, Lab. 2. Junior standing.
Wholesale food marketing and the purchase of food for institutions with emphasis on factors determining quality and cost.
432. **Food Service Planning, Layout and Equipment (5).** Lec. 3, Lab. 4. Spring. Pr., junior standing and HE 352.
A study of floor plans and layouts with emphasis on materials, specifications, and maintenance of equipment and furnishings for institutional food units.
442. **Catering (3).** Lec. 1, Lab. 6. Winter. Pr., HE 202.
Advanced food preparation related to catering. Emphasis on planning, marketing, budgeting and preparation of foods for various occasions: standards of meals and service that are attainable and compatible with modern situations are studied.
462. **Experimental Foods (5).** Lec. 3, Lab. 4. Pr., junior standing, HE 202, and CH 203.
Causes and effects of various methods of food preparation. It includes basic chemical reactions involved in food combinations. The course gives a foundation for work in food research.
472. **Community Nutrition (5).** Pr., junior standing and HE 372 or HE 332 or HE 342.
Problems involved in improvement of nutrition practices in the community, as it applies to high school teaching and Extension Service programs.
482. **Institution Food Service Cost Control (5).** Lec. 4, Lab. 2. Pr., junior standing.
Food control and storeroom management in hospitals, commercial units, and school food services.
492. **Infant and Child Nutrition (5).** Pr., junior standing and HE 372 or HE 332 and HE 342.
Nutrition requirements for growth from pre-natal life through adolescence.

GRADUATE COURSES

620. **Experimental Foods (5).** Pr., or corequisite, CH 304.
Food preparation from the experimental standpoint giving instruction in techniques used in measuring quality of food. This course gives a foundation in advanced food research.
621. **Chemical and Physical Properties of Foods (5).** Lec. 4, Lab. 3. Pr., HE 202 and HE 462.
Chemical and physical changes of importance in food preparation and processing.
622. **Problems in Food Preservation (5).** Pr., VM 311 and HE 332.
Various problems which grow out of advanced study of preservation of foods. These problems are subjects for minor research.
623. **Readings in Food or Nutrition (5).** Pr., HE 372 or HE 332, CH 203.
A critical survey of current literature in nutrition and food consumption.
624. **Advanced Nutrition I (5).** Pr., HE 332, HE 342, CH 203, HE 312.
Carbohydrates, fats, proteins and the minerals.
625. **Advanced Nutrition II (5).** Pr., HE 332, HE 342, CH 203, HE 312.
The vitamins and their interrelationships.
628. **Research Methods in Nutrition (5).**
Special problems in human nutrition.
629. **Community Nutrition and Consumer Economics (3).** Pr., graduate standing.
A three-week course to be offered in summer quarters.

Home Management and Family Economics

233. **Home Equipment (5).** Lec. 3, Lab. 4. Fall, Winter and Spring.
Home equipment, with emphasis on selection, use and care.
303. **The House (5).** Lec. 2, Lab. 6. Fall, Winter, Spring.
Planned to give the student an appreciation of basic plans, both period and modern, from the standpoint of utility, beauty and economy.
313. **Home Furnishing (5).** Fall, Spring, Summer. Pr., HE 104.
A study of home furnishings both from an aesthetic and practical standpoint. This includes the recognition of period furniture and its adaptability to the home of today.
323. **Home Management (5).** All quarters. Pr., HE 202.
The factors affecting the management of the home for the purpose of meeting individual needs and creating satisfying family environment, emphasis on problems involving the use of time, money, and energy.

333. **Lighting Equipment (3).** Lec. 2, Lab. 2. Winter. Pr., PS 204.
Principles underlying the uses of color and lighting equipment in the home.
343. **Interior Home Problems (5).** Lec. 3, Lab. 4. Fall and Spring.
Harmonious combinations of present day furnishings, materials, and finishes.
353. **Community and Family Health (3).** Lec. 2, Lab. 2. General elective.
Health problems related to the community and family including a survey of available health facilities with field trips.
433. **Food Equipment (5).** Lec. 3, Lab. 4. Winter, Summer. Pr., junior standing, PS 204, HE 233.
Principles underlying the operation and use of food equipment.
443. **Home Management Residence (5).** Each quarter. Pr., junior standing, HE 202 and HE 323.
Residence in the home management house gives actual experience in different phases of homemaking with emphasis placed on the management process, satisfactory group relations, and development of individual initiative.
453. **The Consumer and the Market (5).** Lec. 5. Fall, Spring. Pr., junior standing and EC 200 or 201.
463. **Family Economics (5).** Lec. 5. Winter and Summer. Pr., junior standing, HE 453 or equivalent.

GRADUATE COURSES

630. **Trends and Supervision in Home Management (5).** Pr., HE 323 and HE 443 or permission of instructor.
Developments, trends and supervision in home management.
631. **Readings in Home Management (5).** Pr., HE 323.
An analysis and evaluation of literature and research studies in Home Management.
632. **Household Equipment Evaluation (5).** Lec. 3, Lab. 4.
Equipment in the modern home. Equipment is tested and evaluated in the laboratory where instructional and experimental studies are carried on.
633. **Family Housing (5).** Lec. 5. Pr., EC 200, HE 303, HE 323.
The history and development of American housing; economical, legal and social aspects; present trends.
634. **Economic Problems of Families (5).** Pr., HE 323, HE 453.
Income distribution, cost of living, the business cycle, taxation, and economic provisions for unemployment, health, accidents, old age, and dependents.
635. **Advanced Home Management and Equipment (3).** Pr., graduate standing.
A three-week course offered in summer quarters only.

Horticulture (HF)

Professors Perkins, and Orr
Associate Professors Amling, Fisher, Harris, and Jones
Assistant Professors Moore, Norton, and Sanderson
Instructors Martin and Turner

Ornamental Horticulture

101. **Introduction to Ornamental Horticulture (1).** Lec. 1.
An orientation course for freshman students introducing all fields in Ornamental Horticulture.
221. **Landscape Gardening (5).** Lec. 3, Lec.-Dem. 4.
Principles of landscape gardening applied to the development of small home grounds and school grounds. The lecture-demonstration periods are devoted to the study of the identification and use of ornamental plants, landscape drawings, and the propagation and maintenance of ornamental plants.
222. **Trees (5).** Lec. 3, Lab. 4.
Identification, culture and use of ornamental trees in landscape plantings.
223. **Evergreen Shrubs and Vines (5).** Lec. 3, Lab. 4.
Identification, culture, and use of broadleaf and narrowleaf evergreens in landscape plantings.
224. **Plant Propagation (5).** Lec. 3, Lab. 4.
Basic principles and practices involved in the propagation of horticultural plants.
225. **Flower Arranging (3).** Lec. 2, Lab. 2. General elective.
Principles and practices of flower arranging for the home.
321. **Deciduous Shrubs and Vines (5).** Lec. 3, Lab. 4.
Identification, culture and use of deciduous shrubs and small trees in landscape plantings.

323. **Greenhouse Construction and Management (5).** Lec. 3, Lab. 4.
Principles and practices of construction and utilizing greenhouses for various purposes such as plant propagation, crop production, and research.
325. **Landscape Planning of Home Grounds (5).** Lab. 15. Pr., HF 221.
Planning of large and small home grounds.
326. **Landscape Planning of Public Grounds (5).** Lab. 15. Pr., HF 221.
Planning of public areas and grounds of public buildings, including general layout, planting and detail treatment of special areas.
421. **Care and Maintenance of Ornamental Plants (5).** Lec. 3, Lab. 4. Pr., BY 306, 309 and junior standing.
Principles and practices of the care and maintenance of trees and shrubs, including pruning, tree surgery, transplanting, and fertilization.
422. **Floricultural Crop Production (5).** Lec. 3, Lab. 4. Pr., HF 323 and junior standing.
Study of Floricultural crop production under management in greenhouse and outdoor conditions.
423. **Nursery Management (5).** Lec. 3, Lab. 4. Pr., HF 224, BY 306, AY 304 and junior standing.
Principles and practices of the management of a commercial ornamental nursery.
424. **Planting Design (5).** Lec. 3, Lab. 4. Pr., HF 222, 223, 321 and junior standing.
Principles and practices of the combination and use of ornamental plants in landscape plantings.
425. **Flower Shop Management (5).** Lec. 3, Lab. 4. Pr., HF 225, 422, permission of instructor.
Principles and practices of flower shop management and floral designing.
- 426-27-28. **Minor Problems (5-5-5).** Lec. 1, Lab. 8. Pr., senior standing and permission of instructor.
Students are assigned minor problems in either Landscape Maintenance, Nursery Management or Floriculture, on which independent library, field or greenhouse investigations are made, under supervision of instructors.
429. **Advanced Plant Propagation (5).** Lec. 3, Lab. 4. Pr., HF 224, BY 306, and junior standing.
Commercial propagation of Horticultural plants with emphasis on the physiological and anatomical principles.
430. **Marketing Horticultural Specialty Products (5).** Lec. 3, Lab. 4. Pr., HF 422, HF 423.
Channels and methods of distribution of floricultural and nursery products.
431. **Advanced Landscape Gardening (5).** Lec. 3, Lab. 4. Pr., BY 101, HF 221, graduate standing.
Principles and practices applying to the use of ornamental plant material in landscaping. (Selected portions of this course may be offered as a 3 hour credit in the Master of Agriculture program.)
432. **Controlled Plant Growth (5).** Lec. 3, Lab. 4. Pr., AY 304, BY 306, CH 207, CH 208, HF 323, and junior standing.
Study of controlling and directing growth of plants by manipulation of the environment and by the use of chemicals.

General Horticulture

201. **Orchard Management (5).** Lec. 3, Lab. 4. Each quarter.
Propagating, planting, pruning, cultivating, fertilizing, spraying, thinning, harvesting, grading, storing and marketing the most valuable fruits and nuts grown in the South.
308. **Vegetable Crops (5).** Lec. 3, Lab. 4. Each quarter.
Principles and special practices used in the production of vegetable crops.
340. **Industrial Food Preservation Technology (5).** Lec. 3, Lab. 4. Fall. Pr., junior standing or consent of instructor.
Principles of food preservation as applied to industry. Processes considered include refrigeration, pasteurization, canning, freezing, drying, concentration, fermentation, pickling, salting, irradiation, and the use of food additives.
341. **Industrial Food Equipment and Processes I (5).** Lec. 3, Lab. 4. Winter. Pr., junior standing or consent of instructor.
Material and structural requirements of food equipment, and basic principles and processes such as heat exchange, refrigeration, evaporation, distillation, homogenization, extraction, filtration, centrifugation, fluid flow and instrumentation.

342. **Industrial Food Equipment and Processes II (5).** Lec. 3, Lab. 4. Spring. Pr., junior standing or consent of instructor.
Continuation of subject matter of HF 341 with emphasis on unit operations and processes.
343. **Food Analysis and Quality Control (5).** Lec. 3, Lab. 4. Fall. Pr., CH 208.
Sensory, chemical, and instrumental food analysis and its application to quality control and evaluation of grades and standards.
401. **Commercial Vegetable Crops (3).** Lec. 2, Lab. 2. Winter. Pr., HF 308 and junior standing.
An advanced course in the production of the major commercial vegetable crops.
402. **Storage, Packaging, and Marketing of Vegetable Crops (3).** Lec. 2, Lab. 2. Spring. Pr., junior standing.
Physiological, pathological, and horticultural principles in storing, packaging, and marketing of commercial vegetable crops.
404. **Fruit Growing (5).** Lec. 4, Lab. 2. Winter. Pr., HF 201 and junior standing.
Production and marketing of commercial tree fruits grown in the South.
405. **Small Fruits (5).** Lec. 4, Lab. 2. Spring. Pr., HF 201 and junior standing.
Principles and practices involved in the production of strawberries, grapes, blueberries, and brambles.
406. **Nut Culture (5).** Lec. 4, Lab. 2. Fall and Winter. Pr., HF 201 and junior standing.
Production and marketing of pecans, walnuts, chestnuts, tung, and filberts.
408. **Commercial Vegetable Crops (3).** Lec.-Lab. 4. Spring or Summer. Pr., HF 308 and graduate standing.
Application of research information to the commercial production and handling of the principal vegetable crops. (Credit for both HF 408 and 401 may not be used to meet requirements for the Master's degree.)
410. **Recent Advances in Small Fruits (3).** Spring and Summer. Pr., HF 201 and graduate standing.
Scientific advances in small fruits and their application to small fruit culture in Alabama. (Credit for both HF 410 and HF 405 may not be used to meet requirements for the Master's degree.)

GRADUATE COURSES

601. **Experimental Methods in Horticulture (5).** Lec. 3, Lab. 6. Any quarter.
Purposes of research, discovery, and progress as related to the scientific method; research programs, horticultural programs, selecting projects, reviewing literature, preparing project outlines, conducting experiments, recording data, analyzing data, and publication of results.
602. **Horticultural Literature (5).** Lec. 3, Lab. 6. Any quarter.
Review of horticultural literature and history of horticultural enterprises, including vegetables, fruits, and ornamentals. The laboratory consists of library assignments and reports.
603. **Special Problems in Horticulture (3-5).** Credit to be arranged. All quarters. Pr., graduate standing.
Selected problems in vegetable production, pomology, food technology, or ornamental horticulture.
604. **Plant Growth and Development (5).** Lec. 4, Lab. 2. Any quarter. Pr., HF 432 or BY 306 and consent of instructor.
Morphological and physiological changes in horticulture plants as induced by growth regulators and their theoretical implications in the improvement of horticultural crops production.
605. **Nutritional Requirements of Horticultural Plants (5).** Lec. 4, Lab. 2.
Nutritional requirements of horticulture crops and factors affecting these requirements.
606. **Physiology of Horticultural Products Following Harvest (5).** Lec. 3, Lab. 4. Winter, even years. Pr., BY 306 and graduate standing.
Physiological changes occurring in fresh fruits, vegetables, and other horticultural plant products after harvest. Methods of studying these changes and factors influencing them.
607. **Breeding of Horticultural Crops (5).** Lec. 3, Lab. 4. Summer, even years. Pr., ZY 300 and graduate standing.
An application of genetic principles in the propagation and maintenance of fruit, vegetable, and ornamental crop varieties. The genetic basis of some production problems, and special breeding methods applicable to horticultural crops.
699. **Research and Thesis.** Credit to be arranged. May be taken more than one quarter.

Interdepartmental Education (IED)

Included in this section are program areas and course listings designed and taught on the interdepartmental basis. The subheadings reflect the nature and scope of the offerings.

Curriculum and Teaching — Elementary-Secondary**Teaching, Program, and Student Teaching**

Students in either secondary or elementary education pursuing a curriculum leading to certification for teaching in a particular subject-matter field in elementary and secondary schools will take the Teaching and the Program courses in the teaching field in which certification is expected. These courses may be scheduled and taught as separate courses, related courses, or as a unified program.

414. **Teaching in Elementary and Secondary Schools (3).** Lec. 2, Lab. 2. Pr., 9 hours Psychology, FED 200 or equivalent; Pr., or coreq., FED 300 or equivalent.
(A) Art, (C) Dramatic Arts, (J) Music, (M) Speech, (N) Speech Correction.
423. **Program in Elementary and Secondary Schools (3).** Lec. 2, Lab. 2. Pr., 9 hours of Psychology, FED 200 or equivalent; Pr., or coreq., FED 300 or equivalent.
(A) Art, (C) Dramatic Arts, (J) Music, (M) Speech, (N) Speech Correction.
425. **Student Teaching in Elementary and Secondary Schools.** Twelve Grades (10 or 15). Lec. 5, Lab. 20. Pr., 9 hours of Psychology, FED 200 or equivalent; FED 300 or equivalent, two courses in Teaching and Program, and senior standing.
(A) Art, (C) Dramatic Arts, (I) Mental Retardation, (J) Music, (M) Speech, (N) Speech Correction.

Graduate

Courses 651, 652, 653, or 654, apply to the following areas of the school program: (A) Art, (C) Dramatic Arts, (E) Gifted, (I) Mental Retardation, (J) Music, (M) Speech, and (N) Speech Correction.

648. **Advanced Study of Curriculum and Teaching (5).** Pr., FED 647 or consent of departmental chairman.
Major issues, frontier developments, and trends in the improvement of curriculum and teaching in elementary and secondary schools.
651. **Research Studies in Education in Areas of Specialization (5).** Pr., 18 hours of appropriate subject matter and 36 hours of psychology and professional education.
Review, analysis, and interpretation of available research with emphasis on designing new research to meet the changing needs of the school.
652. **Curriculum and Teaching in Areas of Specialization (5).** Pr., 18 hours of appropriate subject matter and 36 hours of psychology and professional education.
Teaching practices and reappraisal of selecting experiences and content for curriculum improvement.
653. **Organization of Program in Areas of Specialization (2-5).** Pr., 18 hours of appropriate subject matter and 36 hours of psychology and professional education.
Advanced course. Program, organization, and development of basic and supplementary materials for guiding teachers, faculties, and school systems in the continuous improvement of curriculum and teaching practices.
654. **Evaluation of Program in Areas of Specialization (2-5).** Pr., 18 hours of appropriate subject matter and 36 hours of psychology and professional education.
Evaluation and investigation of teaching effectiveness with attention also given to the utilization of human and material resources and the coordination of areas of specialization with the total school program and with other educational programs of the community.
658. **Seminar and Independent Study in Curriculum and Teaching (5).** Pr., FED 647 and IED 648.
Research and experimentation in elementary and secondary schools in the development of education programs and the improvement of teaching and learning. Appraisal of significant curriculum research, exploration of areas of needed research in curriculum and instruction, and study of fundamental criteria and methods for solving curriculum problems.

Special Education — Elementary-Secondary

Advanced Undergraduate and Graduate

476. **The Exceptional Child (5).** Pr., junior standing.
The etiology, incidence, diagnosis and philosophy of teaching the exceptional child. Special attention is given to the child who is physically or mentally handicapped and to the child who is mentally superior.
478. **Nature of Mental Retardation (5).** Pr., junior standing and IED 476.
Characteristics and nature of mental retardation. Etiology, identification, and classification of retardation are investigated. Social, psychological, physical, and educational implications of mental retardation are considered.
479. **Methods and Materials for Teaching the Mentally Retarded (5).** Pr., 9 hours of Psychology, FED 200 or equivalent, IED 476, IED 478. Pr., or coreq., FED 300 or equivalent.

Graduate

643. **Education of the Physically Handicapped (5).** Pr., adequate courses in physiology and psychology.
Characteristics of major physical disabilities; the psychology of the physically handicapped; the educational objectives with curriculum adaptations; and related aspects of a total program for the physically handicapped.
650. **Teaching the Mentally Retarded (5).** Pr., IED 476, IED 478 and IED 479.
Observation and participation under supervision in educational programs for the mentally retarded. Lectures and discussions will implement the student's work in the classroom. Students will develop and evaluate plans and programs for the special class. (For teachers pursuing a program of education for mentally retarded children.)

School Library Science — Elementary-Secondary

Advanced Undergraduate and Graduate

472. **Books and Related Materials for Children (4).** Pr., junior standing.
Examination and evaluation of printed and other types of materials in view of their relevance to the needs and interests of various age and grade levels of elementary school children. Study of selection aids, principles, and criteria for selecting materials.
482. **Organization and Administration of School Libraries (5).** Pr., junior standing.
Basic organization of books, non-book materials, and services for effective use in school libraries. Administering the budget, selection and purchase of materials, preparation of materials for use, circulation of materials, inventory, care and repair of materials, and instruction in the use of library materials are considered.
484. **Classification and Cataloging of School Library Materials (5).** Pr., junior standing.
Principles and procedures of classifying and cataloging books and other printed materials, filmstrips, recordings, and community resources. The vertical file, the Dewey decimal system of classification, Wilson and Library of Congress printed cards, and subject headings are studied.
486. **Books and Related Materials for Young People (5).** Pr., junior standing.
Study and evaluation of books and other types of materials in relation to the interests, needs, and abilities of young people of high school age. Attention is given to selection aids, principles and criteria of selection, reading guidance, and significant investigations concerning young people's reading.
487. **Practicum in School Library Services (4-6).** Lec. 2, Lab. 4-8. Pr., junior standing.
Provides students with information pertaining to methods used in the operation of libraries in elementary and secondary schools.

Graduate

610. **Reference Materials and Service (5).** Pr., 10 hours in library science at the 400 level.
Study and evaluation of basic reference sources for effective reference service in school libraries. Elementary research methods of locating information and the role of various types of reference books as resource material in curricular units are considered.
611. **Principles of School Librarianship (5).** Pr., 10 hours in school library science at the 400 level.
Place and function of library service in the American educational system. Historical development of libraries; library services to teachers and pupils as an integral part of the school program; standards and administrative policies are included.

612. **Problems in the Administration of the School Library Services (5).** Pr., 10 hours in school library science at the 400 level.
Current problems relating to an effective program of school library service.
613. **Library Services in the School and Community (5).** Pr., 10 hours in library science at the 400 level.
School library-community relations; historical background, current trends, problems and programs of service; relation to public and rural library extension service; selection of materials on the basis of community and curriculum needs; book lists and exhibits.

Higher Education

Graduate

The courses described below along with AED 618 and AED 697 are designed especially for advanced students who are interested in positions in colleges, universities, and other post secondary-school institutions.

663. **The American College and University (5).**
Philosophy and function, the university and social change, the community college, academic freedom, student-faculty-community relationships; international flow of educational ideas, government cultural programs, higher education and the state.
665. **The Community College (5).**
The rise and development of the community or junior college in American education. Includes organization, curriculum construction, staffing, and instructional procedures.
798. **Research and Thesis (5).**
799. **Doctoral Research and Dissertation.** (Credit to be arranged).

Industrial Engineering (IE)

Head Professor Brooks

Professors Cobb, and Groseclose

Associate Professors Hartford, Layfield, Mize, Morgan, Rainer, and White

Assistant Professors Fowler, Herring, Hool, and Trucks

*Instructor Maghsodloo**

201. **Industrial Engineering (5).** Pr., sophomore standing.
Survey of the concepts, techniques, and functions of Industrial Engineering. (Not open to Industrial Engineering students.)
204. **Computer Programming (3).** Pr., MH 162.
Digital computer programming with emphasis on mathematical and engineering problems.
301. **Electronic Data Processing and Computer Programming (5).** Lec. 4, Lab. 3. Pr., junior standing.
Functions and uses of electronic data processing equipment, and an introduction to digital computer programming with emphasis on administrative problems. (Not open to Industrial Engineering students.)
302. **Production Control Functions (5).** Lec. 4, Lab. 3. Pr., IE 201.
Planning, scheduling, routing, and dispatching in manufacturing operations. Mechanisms for production control. (Not open to Industrial Engineering students.)
303. **Engineering Statistics I (4).** Pr., MH 263.
Basic probability, descriptive statistics, distribution functions, confidence intervals, and engineering applications.
304. **Statistical Laboratory (2).** Lec. 1, Lab. 3. Pr., IE 303.
Data organization, reduction, analysis, and presentation.
305. **Information Systems (2).** Lec. 1, Lab. 3. Pr., IE 204.
Study of interrelated components; the appreciation for, and the understanding of complex computer system concepts.
310. **Work Measurement (5).** Lec. 4, Lab. 3. Pr., IE 303.
Principles and practices of methods engineering and time study.
312. **Engineering Statistics II (5).** Pr., IE 303.
Tests of hypothesis, regression techniques, analysis of variance, and engineering applications.
316. **Electronic Data Processing Systems (5).** Lec. 4, Lab. 3. Pr., IE 301, or IE 204 and IE 305.
Application of computers and associated data processing equipment to business and administrative information and decision systems.

*Temporary.

320. **Engineering Economy (5).** Pr., junior standing.
Practical engineering studies for the economic selection of structures, equipment, processes, and methods.
322. **Quality Control (5).** Lec. 4, Lab. 3. Pr., IE 303 or MH 367.
Statistical methods of controlling quality in manufacturing.
323. **Linear Programming (3).** Pr., IE 204, MH 264.
General linear programming problems with graphical, vector, and simplex methods of solution. Transportation and allocation models included.
406. **Industrial Management Problems (5).** Pr., IE 302, IE 310.
Study of industrial problems which arise in industrial management. (Not open to Industrial Engineering students.)
416. **Industrial Simulation (4).** Pr., IE 304, IE 305, IE 312.
Simulation of industrial systems and processes.
420. **Materials Handling (5).** Lec. 4, Lab. 3. Pr., IE 310.
Materials handling equipment, methods, and systems. (Not open to Industrial Engineering students.)
422. **Inventory Control (5).** Pr., IE 312, MH 361.
Application of quantitative methods to the control of industrial inventories.
423. **Operations Research (5).** Pr., IE 304, IE 305, IE 312, IE 323, MH 361.
Introduction to the methodology of operations research.
424. **Production Control (5).** Pr., IE 423.
Design of industrial production control systems.
426. **Industrial Budget Control (5).** Lec. 4, Lab. 3. Pr., IE 320.
Study of industrial control through budgets and the interrelationships between organization, management, and budgets.
428. **Plant Design (5).** Lec. 4, Lab. 3. Pr., EG 104, EG 105, IE 310, IE 423.
Design and layout of industrial plants.
430. **Contracts and Specifications (3).** Pr., senior standing.
Contract documents; specification writing; professional relations.
432. **Plant Maintenance (3).** Pr., IE 201.
Principles of organizing and controlling maintenance operations in industrial plants. (Not open to Industrial Engineering students.)
434. **Sales Engineering (3).** Pr., IE 201, junior standing.
Application of appropriate principles and techniques to selling industrial products when a background knowledge of production is required. (Not open to Industrial Engineering students.)
436. **Plant Location (5).** Pr., IE 320, IE 323, IE 423.
Study of factors and techniques pertinent to the economic location of industrial plants.
438. **Safety Engineering (5).** Pr., IE 201, junior standing.
Principles, practices, organizations, and procedures for industrial accident prevention and plant protection. (Not open to Industrial Engineering students.)
- 490-1. **Industrial Engineering Problems (1-5).** Pr., permission of instructor and department head approval.
Individual student endeavor under staff supervision involving special problems of an advanced nature in Industrial Engineering.

Advanced Undergraduate and Graduate Courses

440. **Sampling and Survey Techniques (3).** Pr., IE 312, IE 441, and junior standing.
Introduction to the theory and application of statistical sampling and survey methods, with emphasis on methods optimization.
441. **Applied Industrial Engineering Mathematics (3).** Pr., IE 323, MH 264, and junior standing.
Matrix Algebra required for linear programming, transfer theory needed for the study of systems, numerical methods of solving these problems.
442. **Advanced Linear Programming (3).** Pr., IE 323, IE 441, and junior standing.
Continuation of IE 323 with emphasis on theory. Course will cover revised simplex, dual simplex, parametric programming, decomposition, and applied problems.
458. **Reliability Engineering (3).** Pr., IE 312, IE 322, IE 423, and junior standing.
A detailed study of reliability, maintenance, and replacement, with emphasis on quantitatively descriptive methods to be used for problem solving.
464. **Man-Machine Systems (3).** Pr., IE 423, PG 461, or Permission of Instructor and junior standing.
A detailed study of human engineering and human beings' relation to machine systems. Includes a study of human characteristics in view of performance of functions where machines are involved, and design for man-machine systems.

470. **Project Management (3).** Pr., IE 423, or Permission of Instructor and junior standing.
A detailed study of project management and development, with primary emphasis on use of operations research methods and cost analysis. Includes a study of the application of CPM and PERT to project management.
471. **Product Flow Analysis (3).** Pr., IE 416, IE 423, and junior standing.
Application of operations research methods to problems in materials handling. Includes an introduction to general materials handling problems, analysis of fixed schedule systems, random flow systems, waiting lines, conveyors, and the use of simulation methods.
472. **Engineering Controls for Management (3).** Pr., IE 426 and junior standing.
Mathematical and graphical methods for indication and control of corporate performance. Industrial cases and examples of corporate planning and control are studied. Emphasis is on top management functions.
480. **Automation (5).** Pr., junior standing and consent of instructor.
History, development, and state of automation in business. Business data processing and the resulting implications in management practices and research. (Not for science and mathematics students.)

GRADUATE LEVEL COURSES

617. **Advanced Simulation Problems (3).** Pr., IE 416 or permission of instructor.
This course covers journal readings of applications of simulation and development of procedure to solve large scale, realistic simulation problems.
624. **Inventory and Production Control Systems (3).** Pr., IE 422, IE 424.
This course considers advanced topics in production control and inventory theory. The relationships between production and inventory will be discussed.
- 690-1-2. **Industrial Engineering Projects (1 to 3).** Pr., permission of instructor.
Special topics which the student desires to investigate under supervision of the graduate staff.

Industrial Laboratories (IL)

Professor Haynes
Associate Professor Leffard
Assistant Professors Goolsby, McMurtry, and Wingard
Instructor Connor

Courses listed below are available as electives to all students with the necessary prerequisites.

102. **Welding Science and Application (1).** Lab. 3.
Basic principles and application of welding and cutting processes in the fabrication of metals.
103. **Machine Tool Laboratory (1).** Lab. 3.
Introduction to metal removal processes; basic machines of production.
104. **Sheet Metal Design and Fabrication (1).** Lab. 3.
Methods and equipment used in design, production and fabricating of sheet metal products.
105. **Foundry Technology (1).** Lab. 3.
Basic fundamentals involved in casting products of ferrous and non-ferrous metals.
308. **Gages and Measurements (5).** Lec. 4, Lab. 2. Pr., IL 103.
The science of measurement as applied to production and inspection of industrial products.

Manufacturing Processes

Courses designed to acquaint the student with basic manufacturing processes including analysis of machines, tools, material product design, and dimensional control.

301. **Manufacturing Processes—Casting area (3).** Lec. 3. Pr., any one shop course.
Analysis of materials, methods, and design of cast products.
302. **Manufacturing Processes—Machining area (3).** Lec. 3. Pr., IL 103.
Principles of machining metal products.
303. **Manufacturing Processes—Shaping, Forming, and Fabricating area (3).** Lec. 3. Pr., IL 102.
Materials and methods involved in the production of metal products by shaping, forming, and welding processes.
304. **Materials in Design Engineering (3).** Lec. 3.
A survey course designed to acquaint the student with methods of material selection for product development.

310. **Dimensional Control (4).** Lec. 3, Lab. 2. Pr., IL 103.
Fundamentals of Measurement Science with Laboratory Exercises in Dimensional Control.
405. **Problems in Welding Engineering (5).** Lec. 3, Lab. 4. Pr., IL 102.
Advanced phases and techniques of welding and allied processes. Studies in design, weldability of metals, inspection practice, and selection of equipment.
406. **Problems in Machining (5).** Lec. 3, Lab. 4. Pr., IL 103.
Advanced phases of metal machining with emphasis on production machines and accessories.

Courses designed chiefly for the preparation of teachers in Industrial Arts subjects and related fields.

101. **Woodworking (1).** Lab. 3.
Introduction to machines, tools, and materials used in working with wood and plastic.
307. **General Metals (5).** Lec. 3, Lab. 4. Pr., consent of instructor.
Design, construction and finishing art metal projects.
402. **Advanced Woodworking (5).** Lec. 3, Lab. 4. Pr., IL 101.
Studies in design, construction, and finishing fine objects of wood.
403. **General Shops (5).** Lec. 5. Pr., senior standing.
Problems of organization of unit shops into integrated whole for effective use in high school teaching.
415. **Shop Work for Elementary Teachers (5).** Lec. 2, Lab. 6. Pr., junior standing.
Methods, materials, and techniques involved in conducting activity programs in schools and recreational centers.
416. **Materials of Industrial Arts (5).** Lec. 5. Pr., senior standing.
History and use of various materials used in industry.
417. **Organization of Shop Courses (5).** Lec. 5. Pr., senior standing.
Organization and administration of the Industrial Arts program in the public schools.
418. **Industrial Arts Design (5).** Pr., senior standing.
Fundamentals of design as applied to Industrial Arts projects.
419. **Utilization of Machine Tools in Research and Development (1).** Lab. 3.
Instruction in the use of machine tools for machining, fabricating and finishing components and assemblies of working models for developmental projects.
450. **Engineering Metrology (1-5).** Pr., junior standing and departmental approval.
Studies in design, construction and use of precision measuring equipment and gages.

GRADUATE COURSES

- 611-12. **Technical Problems in Industrial Arts (5-5).** Pr., graduate standing.
Advanced study of technology and method in selected areas of Industrial Arts.

Journalism (JM)

Professor Burnett
Instructor Logue

English 101-2 or 103-4 is a prerequisite for all courses in journalism.

221. **Beginning Newswriting (5).**
Introduction to newswriting, newspaper style, and mechanical practice, supplemented by work on the college newspaper.
223. **Reporting (5).** Pr., JM 221.
Study and practice in the technical aspects of reporting and newsgathering methods, supplemented by work on the college newspaper.
224. **Copyreading and Editing (5).** Pr., JM 221.
Methods of editing copy, writing headlines, basic make-up and proof reading.
315. **Agricultural Journalism (3).**
Designed for students in agriculture and home economics. Introduces practices of news coverage and writing, with major emphasis on specialized fields of study.
322. **Feature Writing (5).** Pr., JM 221 or permission of the instructor.
Gathering material for and the writing of "human interest" and feature articles for newspapers and magazines, with consideration given to the marketing of manuscripts.
323. **The Weekly Newspaper (5).** Pr., JM 221.
Methods, problems, and policies involved in editing the weekly newspaper, as differing from the metropolitan daily.
421. **Photo-Journalism (5).**
Uses and processes of photography in the newspaper and magazine field. Operation of press cameras and the technique of developing, printing, and enlarging of pictures is provided.

- 422-3. Journalism Workshop (3-3). All quarters. Pr., 15 hours of journalism, including JM 221 and 223.
A two-quarter course giving practical experience in preparation of newspaper, radio, television, and magazine copy through supervised work with University communication media.
425. Journalism Internship (6). Summer. Pr., JM 221, 223, 224, and consent of instructor.
A full-time internship of at least ten weeks with an approved publication, serving as a regular staff member under the direction of the editor.
465. The History and Principles of Journalism (5).
The development of the American Press, the principles and ideals of modern journalism, and the law of the press and radio.

GRADUATE COURSES

605. Agricultural Newswriting (3). Lec. 4. Pr., 20 hours of Journalism or consent of instructor.
Methods and problems of writing agricultural and home economics news, feature articles, and columns for publication. Special attention is given to improving communication of effectiveness between the specialist and the public.

Laboratory Technology (LT)

Professor Schrader

Instructors Attleberger, and Wheatley

Special Lecturer in Medical Technology F. B. Schultz, M.D.

101. Orientation (1). Fall and Winter quarters.
Designed to acquaint students with the aims, objectives, and requirements for careers in Medical and Laboratory Technology.
301. Hematology (5). Lec. 3, Lab. 6.
Study, procedures, and examinations of the blood, as recommended by the American Society of Clinical Pathologists.
305. Serology (5). Lec. 2, Lab. 6. Pr., VM 204.
Theory and techniques of laboratory tests based in the antigen-antibody reaction.
401. Advanced Hematology (5). Lec. 3, Lab. 6. Pr., LT 301.
Advanced study of blood cells and blood dyscrasias.
402. Seminar in Laboratory Technology (3). Pr., LT 301.
The student reports from the literature on recent advances in the field of laboratory technology.
405. Advanced Serology (5). Lec. 2, Lab. 6. Pr., LT 305.
Theory and techniques of the serological study of human blood.
421. Diagnostic Apparatus (5). Lec. 2, Lab. 9. Pr., PS 206.
Use of such hospital equipment used in X-ray, electrocardiographic, and basic metabolism diagnosis.
422. Hospital Laboratory Practice (5). Lab. 15. Pr., LT 301, LT 421.
Practical applications of the principles, procedures, and techniques encountered in hospital laboratories.
423. Advanced Hospital Laboratory Practice (5). Lab. 15. Pr., LT 422.

Mathematics (MH)

Head Professor Burton

Research Professors Haynsworth, and Ikenberry

Professors Ball, Butz, B. Fitzpatrick, Parker, Perry, E. Williams

Associate Professors Baskerville, P. Fitzpatrick, A. Robinson, C. Robinson,

Thompson, L. Williams

Assistant Professors Bennett, Calder, Coleman, Darwin, M. Fitzpatrick*, J. Ford*, R. Ford, Guenther, Hammett*, Massey, Murrell, Sanders, Wilder*

Instructors E. Ball*, Hartwig*, Howard*, Light*, Moe*, Murphy*,

Newman*, Powell*, Salzmann*, Wolfe*

107. College Algebra (5).
- 121-22. College Mathematics (5-5).
MH 121 is an algebra course designed to prepare students for MH 122 which treats the differential and integral calculus of algebraic, exponential and logarithmic functions. This sequence is not to be taken by students whose curriculum requires MH 160 or MH 161.

*Temporary.

160. **Algebra and Trigonometry (5).**
Basic analytic and geometric properties of the algebraic and trigonometric functions. Designed to prepare students for MH 161.
- 161-2. **Analytic Geometry and Calculus (5-5).** Pr., MH 160.
First two quarters of a four-quarter sequence for technical students.
- 263-4. **Analytic Geometry-Calculus (5-5).** Pr., MH 162.
- 281-2. **Elementary Mathematics (5-5).** Pr., sophomore standing.
These courses are designed to provide appropriate mathematical insights for elementary school teachers. Emphasis is on the structure of the number systems. MH 282 includes an introduction to algebra and geometry.
331. **Higher Algebra (5).** Pr., MH 262.
Properties of integral domains with special emphasis on the arithmetic of the integers and polynomials.
340. **Elementary Topology of the Line and Plane (5).** Pr., MH 262 or consent of instructor.
Elementary set theory, the limit concept, basic topological properties of Euclidean spaces of one and two dimensions.
361. **Differential Equations (5).** Pr., MH 264.
Ordinary differential equations with applications.
362. **Engineering Mathematics I (5).** Pr., MH 361.
Fourier series, Laplace transforms, partial differential equations, special functions.
367. **Mathematical Statistics I (5).** Pr., MH 122 or 262.
Descriptive statistics, elementary probability and sampling theory, least squares and correlation.
403. **Engineering Mathematics II (5).** Pr., MH 361; junior standing.
Complex numbers, functions, mappings, residues, contour integration.
404. **Engineering Mathematics III (5).** Pr., MH 361; junior standing.
Vector analysis, with applications.
405. **Matrix Theory and Applications (5).** Pr., MH 262; junior standing.
Canonical forms, determinants, linear equations, characteristic value problems.
420. **Introduction to Analysis I (5).** Pr., MH 264; junior standing.
An axiomatic study of the real number system leading to theorems concerning number sets, sequences and graphs.
421. **Introduction to Analysis II (5).** Pr., MH 420 or consent of instructor.
A continuation of MH 420 with emphasis on Riemann-Stieltjes Integration. Other topics include continuity, the derivative and functions of bounded variation.
422. **Introduction to Analysis III (5).** Pr., MH 421 or consent of instructor.
An extension of the theory of MH 421 to functions whose domains are in Euclidean spaces.
428. **Linear Differential Systems (5).** Pr., MH 421 or consent of instructor; junior standing.
Systems of linear ordinary differential equations, series solutions, approximate solutions.
431. **Introduction to Modern Algebra (5).** Pr., MH 331; junior standing.
Integral domains, groups, rings, fields.
435. **Theory of Numbers I (5).** Pr., MH 331; junior standing.
Theorems on divisibility; prime numbers; congruences; theorems of Fermat, Euler, and Wilson; power residues.
437. **Linear Algebra (5).** Pr., MH 431; junior standing.
Linear transformation, matrix algebra, finite dimensional vector spaces.
443. **Linear Geometry (5).** Pr., MH 263; junior standing.
Transformations in projective, affine, and euclidean planes.
444. **Combinatorial Geometry in the Plane (5).** Pr., MH 263; junior standing.
A study of Helly's and related theorems.
447. **Foundations of Plane Geometry (5).** Pr., MH 264 and junior standing.
Axiomatic development of a plane geometry. Points, lines, congruences. Emphasis is placed on development of proofs by students.
460. **Numerical Analysis I (5).** Pr., MH 264; junior standing; a knowledge of Fortran IV programming.*
Approximation of functions, interpolation, numerical differentiation and integration.
461. **Numerical Analysis II (5).** Pr., MH 405, 361 or 428; junior standing; a knowledge of Fortran programming.*
Approximation of the solutions of systems of algebraic and differential equations; approximations of the inverse and the characteristic roots and vector of a matrix.

* This information can be obtained by taking IE 204.

- 480. Mathematics of Computation (5).** Pr., MH 262; junior standing.
Various numerical methods of problem solution; programming these methods using an algebraic compiler.
- 481. College Geometry (5).** Pr., MH 262; junior standing.
Classical Euclidean geometry; loci; indirect construction; the nine-point circle; homothetic figures. (Not for majors in science and mathematics.)
- 485. Fundamentals of Algebra I (5).** Pr., MH 262; junior standing.
The structure of the integers, factorization of the integers, congruent theory.
- 486. Foundations of Geometry (5).** Pr., MH 262; junior standing.
Euclidean and non-Euclidean geometries with emphasis given to their logical development from basic assumptions. Some attention given to the history of geometry.
- 487. Fundamentals of Analysis (5).** Pr., MH 262; junior standing.
A study of mathematical analysis with emphasis on basic principles and relationships. (Not for majors in science and mathematics.)
- 491. Special Problems (1-5).** Pr., consent of instructor; junior standing.
Not open to graduate students. An individual problems course. Each student will work under the direction of a staff member on some problem of mutual interest.

GRADUATE COURSES

- 601-2-3. Celestial Mechanics I, II, III (5-5-5).** Pr., consent of instructor.
Elliptic motion, series expansions in elliptic motion, potentials of attracting bodies, numerical integration and differential correction of orbits, lunar theory, theory of perturbations, Lagrange's method and introduction to canonical variables, the disturbing function, artificial satellite orbit theory.
- 607-8-9. Applied Mathematics I, II, III (5-5-5).** Pr., approved graduate standing.
Scalar, vector, and dyadic fields; equations governing fields; Helmholtz's and Laplace's equations in curvilinear coordinates; separation of variables; boundary conditions and eigenfunctions; Green's functions.
- 610. Special Functions (5).** Pr., consent of instructor.
- 613. Tensor Analysis (5).** Pr., consent of instructor.
- 620-21. Functions of Real Variables I, II (5-5).** Pr., MH 422.
Measure theory and Lebesgue Integration.
- 622-23. Functions of a Complex Variable I, II (5-5).** Pr., MH 422.
Complex numbers; analytic functions; derivatives, Cauchy integral theorem and formula; Taylor and Laurent series; analytic continuation; residues; maximum principle; Riemann surfaces; conformal mapping; families of analytic functions.
- 624-25-26. Linear Topological Spaces I, II, III (5-5-5).** Pr., MH 422.
Bounded linear transformations and linear functionals on Banach and Hilbert spaces, including conjugate spaces, adjoint operators, self adjoint operators, spectral theory, applications to particular spaces.
- 628-29. Advanced Theory of Differential Equations (5-5).** Pr., MH 422.
Existence, uniqueness and continuation theorems for ordinary and partial differential equations; nature of solutions. The first quarter will be devoted to ordinary equations, the second to partial differential equations.
- 631-32. Modern Algebra I, II (5-5).** Pr., MH 431.
Numbers; sets; groups; rings; fields of polynomials; Galois theory.
- 633. Theory of Groups (5).** Pr., MH 631.
Sylow theory, abelian groups, chain conditions.
- 634. Theory of Rings (5).** Pr., MH 631.
Structure of rings, ideals in commutative rings.
- 637-8-9. Matrices (5).** Pr., MH 437.
Special types of matrices; reduction to canonical form; functions of matrices; readings in current literature.
- 640-41-42. Functional Analysis (5-5-5).** Pr., MH 626 or consent of instructor.
Topics in the advanced theory of linear functionals and operators on Banach and Hilbert spaces, chosen to lead students into research work in this field.
- 645-46. Differential Geometry I, II (5-5).** Pr., MH 422.
Tensor analysis; curves and surfaces in Euclidean space; introduction to Riemannian geometry of n -dimensions.
- 650-51-52. General Topology (5-5-5).** Pr., consent of instructor.
An axiomatic development of point-set topology; connectivity, compactness, separability, topological equivalence, well-ordering, inner limiting sets, Cartesian products.
- 653. Dimension Theory (5).** Pr., consent of instructor.
The topological study of dimension in separable metric spaces.

- 654-55. **Point Set Topology (5-5).** Pr., MH 652.
Upper semi-continuous collections, indecomposable continua, metrization problems, other topics.
- 657-58. **Algebraic Topology (5-5).** Pr., consent of instructor.
The fundamental group, homology groups, simplicial complexes, other topics.
661. **Numerical Analysis III (5).** Pr., MH 461 or consent of instructor.
Matrices and systems of linear equations; systems of ordinary differential equations; partial differential equations.
667. **Mathematical Statistics II (5).** Pr., MH 367.
Advanced probability and sampling theory, advanced regression and correlation, analysis of variance, Monte Carlo method, factor analysis.
668. **Mathematical Statistics III (5).** Pr., MH 667.
Estimation, experimental design, non-parametric methods, sequential analysis, game theory, linear programming, covariance techniques.

Note: Courses 683 through 687 listed below are for Education majors and are not available to graduate students in science or mathematics. They are offered in summer only.

683. **Number Systems (5).** Pr., approved graduate standing.
Detailed construction of the number system with close attention paid to the logic employed. This course is intended to furnish the high school teacher with a thorough understanding of the number system and its role in high school algebra and analysis.
685. **Fundamentals of Algebra II (5).** Pr., approved graduate standing.
Number fields, including the fields of rational, real and complex numbers; the algebra of polynomials over a field; factorization of polynomials; and theory of equations.
687. **Fundamentals of Analysis II (5).** Pr., MH 487.
Continuation of MH 487 with the introduction of more sophisticated ideas, e.g., the completeness axiom, continuity and inverse functions.
691. **Directed Reading in Algebra.** (Credit to be arranged.) Pr., 10 hours of 600 courses in the area.
692. **Directed Reading in Analysis.** (Credit to be arranged.) Pr., 10 hours of 600 courses in the area.
693. **Directed Reading in Applied Mathematics.** (Credit to be arranged.) Pr., 10 hours of 600 courses in the area.
694. **Directed Reading in Geometry.** (Credit to be arranged.) Pr., 10 hours of 600 courses in the area.
695. **Directed Reading in Topology.** (Credit to be arranged.) Pr., 10 hours of 600 courses in the area.
696. **Directed Reading in Matrix Theory.** (Credit to be arranged.) Pr., 10 hours of 600 courses in the area.
697. **Directed Reading in Numerical Analysis.** (Credit to be arranged.) Pr., 10 hours of 600 courses in the area.
699. **Research and Thesis.** (Credit to be arranged.) May be taken more than one quarter.
799. **Research and Dissertation.** (Credit to be arranged.)

Mechanical Engineering (ME)

Head Professor Vestal

Professor and Assistant Head Professor Jones

*Professors Bussell, Groseclose, Jemian, Lawson, Maynor, Shaw, and Tanger***

Visiting Professor Elkayar

Alumni Associate Professor Vachon

Associate Professors Barbin, Cooley, Fluker, Scarborough, Smith, Swinson, and Ward

*Assistant Professors Dunn, Dyer**, Harmon, Leppert, Maples, and Reece*

Instructors Busch, Cheng, McKinney*, Nix, Reiter, Terrill, and Yu*

Visiting Lecturer Touloukian

202. **Engineering Materials Science—Structure (3).** Pr., CH 103, PS 201 or PS 205.
Theories and structures of crystalline and amorphous materials. Bonding, crystal classes, phase equilibrium relationships, diffusion and phase transformations.

*Temporary.

**On leave.

- 205. Applied Mechanics—Statics (4).** Lec. 3, Lab. 2. Pr., PS 201, corequisite, MH 263.
Resolution and composition of forces; equilibrium of force systems; friction, centroids; moments of inertia.
- 208. Strength of Materials I (4).** Lec. 3, Lab. 2. Pr., ME 205 and MH 263.
Fundamentals of stress and strain; stress-strain relations; temperature effects, bar with axial force, thin-wall cylinders; torsion; beams; columns.
- 301. Thermodynamics I (4).** Lec. 3, Lab. 2. Pr., MH 263 and PS 202. (Excludes credit in ME 310.)
Law of thermodynamics; work, heat, and properties; relationships among properties; equations of state; simple processes and cycles.
- 302. Thermodynamics II (4).** Lec. 3, Lab. 2. Pr., ME 301.
Continuation of ME 301. Mixtures of gases and vapors; cycle analysis; vapor and gas power cycles; combustion engine processes; refrigeration; introduction to cryogenics.
- 304. Engineering Materials Science—Properties (3).** Pr., ME 202, ME 208.
Relationships between structure and properties and the effects of environment. Mechanical properties, plasticity of single and poly-crystals, and properties of composite materials.
- 307. Applied Mechanics—Dynamics (5).** Pr., ME 205 and MH 263.
Types and principles of motion; action of unbalanced force systems affecting the motion of rigid bodies.
- 308. ME Laboratory I (1).** Lab. 3. Corequisite, ME 302.
Mechanical laboratory experiments and reports.
- 309. Materials Testing Laboratory (1).** Lab. 3. Pr., ME 208.
Testing of engineering materials in tension, in compression, and for hardness.
- 310. Thermodynamics (5).** Pr., MH 263 and PS 202.
Gases and vapors, cycles, mass and heat transfer. (For non-Mechanical Engineering students only.) (Credit in ME 310 excludes credit in ME 301 and 302.)
- 311. ME Laboratory II (1).** Lab. 3. Pr., ME 302 and ME 308.
Mechanical Engineering Laboratory experiments and reports.
- 316. Strength of Materials II (4).** Pr., ME 208, MH 361.
Continuation of ME 208. Thick walled cylinders; curved beams; introduction to stability; theories of failure; energy.
- 319. Elementary Heat Power (5).** Pr., CH 104, PS 205, MH 162.
Introduction to power plant equipment, fuels and combustion, spark ignition and compression ignition engines, steam and gas cycles. (For non-Mechanical Engineering students only.)
- 321. Dynamics of a Particle (4).** Lec. 3, Lab. 2. Pr., ME 205 and MH 263.
Motion of a particle; Newtonian potential; force, mass, and acceleration for plane and three-dimensional motion.
- 322. Dynamics of Systems of Particles (4).** Lec. 3, Lab. 2. Pr., ME 321.
Relative motion; force, mass, and acceleration of rigid bodies; work and energy; impulse and momentum; conservation of linear and angular momentum.
- 323. Dynamics of Machines (4).** Lec. 3, Lab. 3. Pr., ME 208 and ME 322.
Angular and linear velocities and accelerations in machines; acceleration stresses in machine parts; balancing of slider crank mechanisms; crankshaft balancing; critical speeds of variable cross-section shafting; kinematics of gearing and the determination of gear forces.
- 324. Fluid Mechanics I (4).** Lec. 3, Lab. 2. Pr., ME 322, and ME 301 or ME 310.
Definitions and concepts; fluid statics; conservation of mass, momentum and energy; viscosity and its effects.
- 325. Fluid Mechanics II (4).** Pr., ME 324; Coreq., ME 302.
Continuation of ME 324. Dimensional analysis; model testing; potential theory; compressible flow; applications to turbomachines.
- 327. Mechanical Vibrations (4).** Pr., ME 208, ME 322, and junior standing.
Theory of vibration of systems of one or more degrees of freedom, with and without damping; systems with distributed constants and self-induced vibration.
- 335. Engineering Materials Science—Physical Metallurgy (4).** Lec. 3, Lab. 3. Pr., ME 304.
Relationship between structure and properties of metals. Melting and solidification, crystal structure, dislocation and imperfection theories, alloying, deformation, and transformations.
- 336. Metallography and Heat Treatment I (4).** Lec. 3, Lab. 3. Pr., ME 335, PS 202.
Analysis and interpretation of metallic structures with principal emphasis on the principles and practice of optical metallography. Samples will be heat treated and processed by the students according to the principles of the science of metals.

337. **Metallography and Heat Treatment II (4).** Lec. 3, Lab. 3. Pr., ME 336, PS 413.
The analysis and interpretation of metallic structures utilizing a variety of techniques such as optical microscopy, thermal analysis, X-ray diffraction and radiography. Students will heat treat their own samples for analysis.
338. **Phase Diagrams (4).** Lec. 3, Lab. 3. Pr., ME 335, CH 412.
Methods of representing and interpreting phase equilibria. Binary and multicomponent systems. Simpler temperature-composition systems and more complex temperature-pressure-composition systems. Major emphasis on applications. Minor emphasis on phase diagram determination and thermodynamics.
410. **Power Systems (4).** Pr., ME 302 and senior standing.
Theory, design, performance and applications of power systems.
411. **ME Laboratory III (2).** Lec. 1, Lab. 3. Pr., ME 311 and ME 412.
Advanced experiments in ME Laboratory and reports.
412. **Combustion Engine Systems (4).** Pr., ME 302, ME 323, ME 325, ME 421 and junior standing.
Design and development of power systems including reciprocating, electric, nuclear, and turbine types; liquid and solid propellant systems.
414. **Turbomachines (4).** Pr., ME 324 or CE 308, junior standing.
Applications of fluid mechanics to turbomachines, such as pumps, turbines, and fluid couplings; control devices.
421. **Heat Transfer (4).** Pr., ME 301, ME 324 or AE 301, EE 372, MH 362, and junior standing.
Fundamental principles of heat transfer by steady and unsteady conduction, thermal and luminous radiation, boiling and condensation, free and forced convection.
422. **Transport Phenomena (4).** Pr., ME 421, and junior standing.
Transport phenomena involving mass, momentum, and energy transfer coupled with chemical alterations in single phase or multicomponent media.
424. **ME Laboratory IV (2).** Lec. 1, Lab. 3. Pr., ME 311 and ME 410.
Advanced experiments in ME Laboratory and reports. (No graduate credit permitted for M.M.E.)
425. **Gas and Steam Turbines (4).** Pr., ME 302 and senior standing.
Thermodynamic theory and design of nozzles and blade paths for gas and steam turbines.
426. **Steam Turbines (4).** Pr., ME 302 and senior standing.
Thermodynamic theory and design of steam turbines.
428. **Air Conditioning and Refrigeration (4).** Pr., ME 302 or ME 310 and junior standing.
Theory and design of heating, cooling and ventilating systems, and refrigeration systems, including cryogenics.
429. **Power Plant Design (4).** Pr., ME 410 and junior standing.
Design problems and layout of a power plant.
430. **Internal Combustion Engine Problems (4).** Pr., ME 302, ME 412.
Application of internal combustion engine theory to the design of engines.
432. **Automatic Controls (4).** Pr., MH 361, ME 322, ME 324, EE 362, and junior standing.
Process analysis; methods of control; closed loop in control; feedback systems; analysis of system problems.
434. **Fluid Mechanics and Heat Transfer (5).** Pr., ME 310 and junior standing.
The mechanics of compressible and incompressible fluids and the transmission of heat by conduction, convection, and radiation. (For non-Mechanical Engineering students only.)
436. **Engineering Materials Science—Ferrous Metallurgy (4).** Lec. 3, Lab. 3. Pr., ME 335 and junior standing.
Design of ferrous metals following modern theory and practice. Hardenability, alloying, deformation, and special purpose steels.
437. **Engineering Materials Science—Nonferrous Metallurgy (4).** Lec. 3, Lab. 3. Pr., ME 335 and junior standing.
Design of nonferrous metals following modern theory and practice. Aluminum and copper-beryllium systems, corrosion resistant alloys, refractory metals, strengthening mechanisms, spacecraft environments.
438. **Residual Stresses in Metals (4).** Pr., 335, and junior standing.
Production and measurement of residual stresses in metals; relation of residual stresses to fatigue; consideration of fatigue in design.
439. **Machine Design I (4).** Lec. 3, Lab. 3. Pr., ME 304, ME 323; Coreq. ME 335.
Design of machine elements for static and dynamic stresses with the emphasis on synthesis and creative design.

440. Machine Design II (4). Lec. 3, Lab. 3. Pr., ME 439, ME 327, ME 316, ME 335.
Continuation of ME 439, considering more advanced topics and the design of complete machines.
441. Engineering Systems I (4). Lec. 3, Lab. 3. Pr., senior standing and approval of Department Head.
Typical problems requiring the development of skill in the use of analysis, synthesis and creativeness to design, evaluate, and optimize engineering systems.
442. Engineering Systems II (4). Lec. 3, Lab. 3. Pr., ME 441.
A continuation of ME 441.
443. Photoelastic Stress and Strain Analysis (4). Lec. 3, Lab. 3. Pr., ME 208, and junior standing.
Theory of the polariscope, two and three dimensional photoelastic model making and preparation, techniques of data from photoelastic models, determination of principal stresses from photoelastic data, and transition from model stresses to prototype stresses.
446. Advanced Physical Metallurgy—Theoretical Metallurgy (4). Lec. 3, Lab. 3. Pr., ME 335, CH 408, PS 203.
The study of the physical properties of metals in relation to the modern theories of metals.
447. Advanced Physical Metallurgy—Plasticity (4). Lec. 3, Lab. 3. Pr., ME 335, ME 316.
The macro- and micro-processes involved in the plastic deformation of metals. Slip, twinning, dislocation theory, creep, fatigue, impact, high velocity deformation, and other plastic deformation processes will be studied in relation to current knowledge.
450. Special Problems. (Credit 1-5). Pr., Department Head approval, junior standing.
Individual student endeavor under staff supervision involving special problems of an advanced nature.
451. Advanced Projects (3). Lec. 1, Lab. 6. Pr., ME 421, ME 316, ME 325, ME 323, and senior standing.
Individual projects of an current nature, involving both analysis and synthesis, culminating in a formal report.

GRADUATE COURSES

600. Fluid Dynamics (3). Pr., MH 404 and graduate standing.
Navier-Stokes Equations. Exact and approximate solutions. Euler's equations. Continuity. Energy equations. Irrotational flow. Crocco's theorem. Creeping flow. Turbulence and Reynolds' Equations.
601. Boundary Layer Theory (3). Pr., ME 600 or CE 612.
Hydrodynamic, thermal, mass and magnetic boundary layers. Prandtl's equations. Momentum equations. Energy equations.
602. Gas Dynamics I (3). Pr., ME 600 or CE 612.
Compressible flow equations; Isentropic flow; Fanno line flow; Rayleigh line flow; shock waves; high speed flow; internal and external flows; forces on immersed bodies.
603. Gas Dynamics II (3). Pr., ME 600, ME 602, or consent of instructor.
Supersonic flow theory with emphasis on applications to internal flows with and without heat transfer.
604. Advanced Thermodynamics I (3). Pr., ME 302 and graduate standing.
First and second laws of thermodynamics, Carnot cycle and Kelvin temperature scale and applications.
605. Advanced Thermodynamics II (3). Pr., ME 604.
Chemical thermodynamics, physics of low temperatures, thermodynamics of fluid flow and rocket systems.
606. Propulsion Systems (4). Pr., departmental approval.
Chemical systems including liquid and solid rocket engines; thermionic engines and ionic propulsion; plasma and nuclear propulsion systems.
607. Energy Conversion Systems (3). Pr., ME 410 or departmental approval.
Electromechanical energy conversion; thermoelectricity; thermoionic converters; Photovoltaic conversion; magnetohydrodynamic generators; fuel cells.
612. Engineering Analysis (3). Pr., departmental approval.
Equilibrium, eigenvalue, and propagation problems for continuous systems. Physical laws and mathematical properties discussed with considerable emphasis on numerical solutions.
615. Experimental Research Methods (3). Pr., departmental approval.
Numerical methods and data processing, mathematical statistics and probability, analysis of experimental data, errors of measurement, and instrumentation.
616. Fluid Machines (3). Pr., ME 602.
Similarity considerations; cavitation; cascade theory; axial and radial flow machines.

617. **Turbulence (3).** Pr., ME 600 and ME 601.
Analysis of wall-affected and free turbulent flows.
620. **Heat Transmission—Conduction (3).** Pr., ME 421.
Fourier's general equation, influence of heat sources and sinks, analog and numerical methods of solving heat transfer problems, heat transfer from extended surfaces, transient heat transfer with steady and unsteady boundary conditions.
621. **Heat Transmission—Convection (3).** Pr., ME 421.
General problems of convection, forced convection heat transfer, free convection, thermodynamic boundary layers, condensing and boiling, heat transfer to liquid metals and analysis of heat exchangers.
622. **Heat Transmission—Radiation (3).** Pr., ME 421.
Fundamental laws of radiation, net radiation methods, configuration factors, radiation through absorbing media, solar terrestrial and celestial radiation, and thermometry and temperature control.
630. **Advanced Strength of Materials (3).** Pr., ME 316, MH 361, or departmental approval.
Selected topics in strength of materials. Beam on elastic foundation, graphical representations of three dimensional stress state, bending of curved bars, theories of failure.
631. **Theory of Elasticity I (3).** Pr., departmental approval.
Three dimensional theory of stress and strain for small deformations. Applications to problems of plane stress and plane strain. Solutions by Airy Stress function and Kolosov-Muskhelishvili methods.
632. **Theory of Elasticity II (3).** Pr., ME 631.
Selected topics in three dimensional problems. Torsion of bars, bending of prismatic bars, thermal stresses, introduction to the general (non-linear) theory of elasticity.
633. **Experimental Stress Analysis (3).** Pr., ME 316 or departmental approval.
Relationship between strains and stresses. Use is made of modern experimental stress analysis techniques such as electric resistance strain gages, photoelasticity, brittle coatings, and photostress.
634. **Elastic Stability (3).** Pr., ME 631, CE 633, or departmental approval.
Buckling failure of columns by bending, twisting or shear; lateral buckling of beams; shear buckling; buckling of thin plates and shells. Applications to problems.
635. **Intermediate Dynamics (3).** Pr., ME 325, MH 361.
Dynamics of particles and systems of particles applied to engineering problems. Work and energy, and impulse and momentum principles. LaGrange's equations and Hamilton's principle.
636. **Non-Linear Oscillations (3).** Pr., ME 325, ME 427, or departmental approval.
Free, forced, and self-excited oscillations in mechanical systems. Relaxation oscillations, response curves and stability considerations.
637. **Theory of Plates (3).** Pr., departmental approval.
Analysis of stress, strain, and deformation of plates under applied transverse loads. Applications to plates of different geometries with various boundary conditions.
638. **Theory of Shells (3).** Pr., departmental approval.
Analysis of stress, strain and deformation of shells under applied loads.
639. **Variational Mechanics (3).** Pr., consent of instructor.
The problem of Belzai, Mayer and Lagrange with fixed and variable end points; Hamilton's principle and Lagrange's equations; energy method; Rayleigh's principle and Rayleigh-Ritz method; Galerkin method; variational methods; applications.
660. **Metallurgy of the Solid State (3).** Pr., departmental approval.
Basic principles relating to the behavior of materials. Ultimate structure of matter, crystal-line structures, thermodynamic stability and reaction kinetics are discussed along with bonding, dislocations, polycrystalline structures, mechanical and thermal properties, electronic conduction, semi-conduction, and insulation. Considerable emphasis on application to real problems, predominantly of the engineering type.
661. **Metallurgy of Corrosion (3).** Pr., departmental approval.
Nature and mechanism of corrosion. Effect of manufacturing methods including heat treatment. Effect of environment. Corrosion types and methods of corrosion prevention.
662. **Performance of Metals at Elevated Temperatures (3).** Pr., departmental approval.
Fundamental behavior of metals at elevated temperatures. Commercial and experimental types of ferrous and non-ferrous alloys and their suitability for elevated temperature applications.
663. **X-ray Metallography (3).** Pr., ME 335 and MH 361.
The principles of X-ray absorption and diffraction and application to the study of metals and other crystalline materials.

- 665. Strengthening of Metals (3).** Pr., ME 335.
A treatment of the six basic mechanisms by which metals are strengthened. Emphasis is placed on causative factors and accompanying manifestations.
- 666. Plasticity of Metals (3).** Pr., ME 335.
A quantitative treatment of: the minimization of plastic flow, by means of design considerations, where the phenomenon is associated with deleterious effects; the maximization of plastic flow, by means of material-condition and forming method considerations, where the objective is to form or shape.
- 667. Dislocation Theory (3).** Pr., consent of instructor.
Study of nature and properties of dislocations including crystal structure and imperfections, dislocation geometry in both ideal and real crystals, dislocation configurations, multiplication and interactions with various imperfections, and methods of observation.
- 675. Analysis of Mechanisms (3).** Pr., ME 323.
The analysis of mechanisms by various techniques. Mechanisms of higher and lower complexity. Plane motion theory, space mechanisms, and introduction to synthesis.
- 676. Synthesis of Mechanisms (3).** Pr., ME 675.
Methods of synthesis using finite displacement techniques. Plane motion theory and its application to infinitesimal motion synthesis. Introduction to gross motion.
- 677. Selected Topics in Mechanical Design (3).** Pr., ME 630 and ME 675.
Dynamic properties of trains of mechanisms; hydrostatic and hydrodynamic lubrication; thermal equilibrium; wear and fatigue problems; design techniques involving computers.
- 690. Seminar (credit to be arranged).** May be taken more than one quarter.
- 691. Directed Reading in Mechanical Engineering (credit to be arranged).** May be taken more than one quarter.
- 699. Research and Thesis (credit to be arranged).** May be taken more than one quarter.
- 799. Research and Dissertation (credit to be arranged).** May be taken more than one quarter.

Military Science (MS)

BASIC COURSE

First Year (Freshman)

Military Science I

- 101. Organization of the Army and ROTC; United States Army and National Security; Individual Weapons and Marksmanship; Leadership Laboratory (I).** Lec. 3, Drill 2.
- 102. Leadership Laboratory (I).** Drill 2.
- 103. Leadership Laboratory (I).** Drill 2.

Second Year (Sophomore)

Military Science II (Pr., MS I or as determined by the Professor of Military Science).

- 201. American Military History (I).** Lec. 2, Drill 2.
A survey from the origins of the American Army to the present with emphasis on factors which led to the organizational, tactical, logistical, operational, strategic, social, and similar patterns found in our present day Army.
- 202. Map and Aerial Photograph Reading (I).** Lec. 2, Drill 2.
Includes application of basic principles, emphasizing terrain appreciation and evaluation; marginal information; military and topographic map symbols; orientation; intersection; resection; military grid reference system; classes of aerial photography and elementary aerial photography reading.
- 203. Introduction to Operations and Basic Tactics (I).** Lec. 2, Drill 2.
Includes instruction in the basic military team; combat formations and patrolling; field fortification and camouflage, cover and concealment; technique of fire and principles of offensive and defensive combat.

ADVANCED COURSE

Third Year (Junior)

Military Science III (Pr., all MS I and MS II or equivalent as determined by Professor of Military Science).

301. **Military Teaching Principles and Leadership (3). Lec. 4, Drill 2.**
Educational psychology as pertains to five stages of instructional technique; responsibilities and basic qualities of a leader; leadership principles, traits and techniques.
302. **Branches of the Army and Communications (3). Lec. 4, Drill 2.**
Familiarization with all branches of the Army so that a cadet may select the branch in which he wishes to be commissioned; principles and methods of communications.
303. **Small Unit Tactics (3). Lec. 4, Drill 2.**
Infantry organization; principles of offensive and defensive combat; guerrilla warfare.

Fourth Year (Senior)

Military Science IV (Pr., MS III or as determined by the Professor of Military Science).

401. **Operations (3). Lec. 4, Drill 2.**
Origin and purpose of staff; relationship between commanders and their staffs.
402. **Logistics and Army Administration (3). Lec. 4, Drill 2.**
Functioning of staffs; mission of supply, supply doctrine and principles; classes of supply; familiarization with Army publications, forms, records, reports and administrative system.
403. **Military Law, Role of US in World Affairs and Service Orientation (3). Lec. 4, Drill 2.**
Functioning of military law system; relation of military law to civil law; types of conflict, inter-relationship of elements of national power; customs of the service; code of conduct, responsibilities and obligations of an officer.

Music (MU)

Head Professor Campbell

Professors Clyde, Hinton, Tamblyn, and Liverman

Associate Professors Bentley, Moore, and Walls

*Assistant Professors Stephens, Rawlins, Calder, Davis, and Jordan**

Instructor Lavore

- 131-32-33. **Music Theory I-II-III (3-3-3). Pr., MU 102 or by permission.**
Integrated course in the development of listening, performing, and writing techniques, elementary diction, analysis, music reading, and diatonic harmony.
- 151-52-53. **Survey of Music Literature (1-1-1). Lec. and Lab. 3-3-3.**
Presentation of vocal solo and choral, keyboard and chamber music, acquainting the student with musical compositions and composers with emphasis on music literature of the past three centuries.
- 211-12. **Service Playing (1-1).**
Study of hymn playing, modulation, selected anthems and oratorio selections, simple improvisation and transposition.
- 231-32-33. **Music Theory IV-V-VI (3-3-3). Pr., MU 133.**
Continuation of composite theory through chromatic harmony; analysis of larger forms; continued music reading and keyboard harmony.
- 251-52-53. **Survey of Music Literature (1-1-1). Lec. and Lab. 3-3-3.**
Presentation of instrumental solo, opera and symphonic music, acquainting the student with musical compositions and composers with emphasis on music literature of the past three centuries.
311. **Liturgies (3).**
Liturgical worship service of Roman Catholic and Protestant churches, plus non-liturgical forms of other Protestant denominations.
312. **Hymnology (3).**
Study of the musical significance of hymns of the Christian church from earliest times to the present.
- 331-32-33. **Modern Harmony I-II-III (3-3-3). Pr., MU 233.**
Twentieth-century harmonic devices. An integrated approach to understanding contemporary writing, with emphasis on original work and analysis of the principal departments from "traditional" harmony.
- 334-35-36. **Counterpoint I-II-III (3-3-3). Pr., MU 233.**
I. Strict Counterpoint. Counterpoint in 5 species in 2 or 3 voices concluding with invertible counterpoint. II. Tonal counterpoint. Contrapuntal devices of the 18th Century including double counterpoint and imitation. III. Invention and Fugue. The study and writing of 2 part inventions, canonic treatment, and the 3 voice fugue.

*Temporary.

351-52-53. Music History I-II-III (3-3-3).

Development of music from early times to the present day. Lectures, recorded examples, readings.

361-62-63. Conducting I-II-III (3-1-1). Pr., MU 133, MU 153.

I. Elementary basic baton techniques and introduction to score reading. II. Choral conducting. Elementary course in choral score reading and conducting choir and glee clubs. III. Instrumental conducting. Elementary course in instrumental score reading and conducting band, orchestra and instrumental ensembles.

409. Marching Band Techniques (3).

Fundamental methods and procedures of the Marching Band.

414. Care and Repair of Musical Instruments (1). Lec. 1, Lab. 3. Pr., senior standing.

Selection, care and repair of woodwind, brass and string instruments with emphasis on adjustments which should be made by the instrumental director.

415. Organ Literature and Design (3).

Survey of organ literature correlating the forms of compositions and types of organs for which the music was written.

416. Church Music Seminar (3). Lec. 2, Lab. 3.

Study of setting up a complete church music program. Supervised directing of a choral group throughout the quarter.

422-23-24. Theory Review (3-3-3). No credit for Applied Theory Composition or Pedagogy Majors.

Harmonic techniques of the 18th and 19th centuries, with special emphasis on style and design.

431-32-33. Music Analysis (3-3-3). Pr., MU 253 and MU 233.

Harmonic and structural analysis of smaller instrumental forms; harmonic and structural analysis of the larger polyphonic and homophonic forms.

434-35-36. Music Composition I-II-III (3-3-3). Pr., MU 233.

Analysis, study, and writing of musical compositions in small, compound, and larger musical forms with emphasis on both stylistic and individual creative writing.

437-38-39. Orchestration I-II-III (3-3-3). Pr., MU 233.

Ranges, notation, and characteristics of orchestral instruments. Exercises in arranging for combinations of string and wind instruments. Theory and practice of orchestration for full orchestra.

441. Piano Pedagogy (3).

For prospective piano teachers. Study of teaching methods for beginners and succeeding levels. Classification and analysis of teaching repertoire.

442. Vocal Pedagogy (3).

For prospective voice teachers. An intensive study of the materials and methods of voice training. Classification and analysis of teaching repertoire.

443. String Pedagogy (3).

Mechanics of stringed instruments. Teaching methods, schools, and systems. Teaching literature and repertoire.

444. Instrumental Pedagogy (3).

Mechanics of brass or woodwind instruments. Teaching methods and repertoire with emphasis on solo instrumental literature.

445. Theory Pedagogy (3).

Required of seniors majoring in theory and composition. Designed to present the problems of sightsinging, rhythmic dictation, melodic and harmonic dictation, and part writing from a pedagogical viewpoint.

451. Keyboard Literature (3). Pr., junior standing.

Masterworks of the clavichord, harpsichord, organ, and piano literature from the Baroque period to the present.

452. Vocal Literature (3). Pr., junior standing.

Vocal literature from Elizabethan time to the present, including representative European and American repertoire.

453. Choral Literature (3). Pr., junior standing.

Chronological study of choral music from the Middle Ages to the present including opera, and oratorio with detailed examination of representative works.

454. Instrumental Literature (3).

Analysis and study of orchestral scores and parts from the classic, romantic and modern literature.

General Elective Courses**371. Introduction to Music (3). No credit allowed to Music Majors and Minors.**

Introductory course in the understanding of music including an explanation of basic terms, notations, rhythm, tonal system, vocal and piano score reading.

372. **History of Jazz (3).**
The growth of Jazz from its African and European roots to current experimentation.
373. **Appreciation of Music (3).** May not be taken for credit by Music Majors or Minors.
Outstanding composers and compositions. No previous music training required; an orientation in the art of listening.
374. **Masterpieces of Music (3).** May not be taken for credit by Music Majors or Minors.
Representative musical works of each great period of musical history. No previous music training required.
401. **Fundamentals of Music (3).** General elective. No credit for music majors or minors.
A course in the beginning of music designed primarily for elementary teachers. To develop functional piano sight-reading, rhythm, and melodic skills.
- 477-78-79. **Music Arranging (3-3-3).** By permission.
Project course in arranging various combinations from quartet to symphonic band, and arranging for solo and choral groups.

Group Performance Courses*

- 121-22-23. **Glee Club (1 hour credit per quarter).**
MEN'S GLEE CLUB AND WOMEN'S GLEE CLUB are study and performing groups open to any Auburn student. (May be taken with or without credit.)
- 221-22-23. **Choral Union (1 hour credit per quarter).**
Open to any Auburn student. Required for all Music Majors and Minors. (May be taken with or without credit.)
- 321-22-23. **Concert Choir (1 hour credit per quarter).**
CONCERT CHOIR is a small mixed chorus for study and performance of serious choral literature; open to any Auburn student by audition only. (May be taken with or without credit.)
- 124-25-26. **Concert Band (1 hour credit per quarter).**
Members of the Band are selected during the first week of each quarter. A minimum of 5 rehearsal hours per week is required, with extra rehearsals scheduled as necessary. Band members are required to be present at all rehearsals and all public performances. (May be taken with or without credit.)
- 127-28-29. **Orchestra (1 hour credit per quarter).**
Members of the symphonic orchestra are selected by try-outs during the first week of each quarter. (May be taken with or without credit.)
- 224-25-26. **Marching Band (1 hour credit per quarter).**
Provides music for athletic contests and half-time shows at football games, various parades, pep rallies, and other campus and off-campus events. During the fall quarter, will rehearse a minimum of 9 hours per week. Physical Education may be waived for members of the Marching Band. See Band Director for details. (May be taken with or without credit.)
- 227-28-29. **Opera Workshop (1 hour credit per quarter).**
Open to all students interested in opera, including performance, stage-craft, make-up, conducting, and coaching. A minimum of three hours per week rehearsal or stage-craft is required with extra time scheduled as necessary. (May be taken with or without credit.)
- 324-25-26. **Music Ensemble (1 hour credit per quarter).** (By permission.)
Primarily for advanced musicians for the study and performance of musical compositions for small instrumental and vocal groups. A minimum rehearsal of three hours per week required. (May be taken with or without credit.)
- 327-28-29. **Piano Ensemble (1-1-1). Lab. 3-3-3.**
Study through performance of original compositions and transcriptions for piano-four-hands and two pianos using two to four players.

Applied Music**

Piano

- 081-82-83. **Elementary Piano (No credit).**
General keyboard facility, sight reading of folk tunes and easier classics; repertory of simple piano material; harmonization and transposition of folk tunes and familiar songs; elementary improvisation.

* Except for majors and minors in Music, maximum credit allowed in group performance courses is six quarter hours.

** Only MU majors in Bachelor of Arts or Bachelor of Music curricula may receive more than 1 hour credit per quarter for each applied music course.

181-82-83. Intermediate Piano (1, 2, or 3 hrs. per quarter). Pr., MU 083.

Individual instruction in piano. The student is trained in correct touch and reliable technique, by playing correctly all major and minor scales in moderately rapid tempo, broken chords in octave positions in all keys by establishing systematic methods of practice and by performing.

281-82-83. College Piano I (1, 2, or 3 hrs. per quarter). Pr., acceptable playing of works from MU 183.

Bach, French Suites, and Two-part Inventions; Czerny, Studies; Beethoven, Sonatas in grade of difficulty to Op. 14 No. 1; Romantic and Contemporary pieces.

381-82-83. College Piano II (1, 2, or 3 hrs. per quarter). Pr., acceptable playing of works from MU 283.

Bach, Well Tempered Clavichord, Three-part Inventions; Czerny, Studies, Op. 740; Beethoven, Sonatas in grade of difficulty to Op. 2, No. 1; Romantic and Contemporary pieces.

481-82-83. Advanced College Piano (1, 2, or 3 hrs. per quarter). Pr., acceptable playing of works from MU 383.

Bach, Well Tempered Clavichord; Chopin, Etudes; Brahms, Schumann, and more advanced work in Romantic and Contemporary composers.

Voice**084-85-86. Elementary Voice (No credit).**

First principles of voice production, diction and singing; song material for development toward performance. Exercises for voicing and facility; correct posture and breathing.

184-85-86. Intermediate Voice (1, 2, or 3 hrs. per quarter). Pr., MU 086.

Individual instruction in singing. The student is trained to sing on pitch with correct phrasing and musical intelligence standard songs in good English (the simplest classics are recommended). The singing of simple songs at sight is stressed. Some knowledge of piano is urgently recommended.

284-85-86. Voice I (1, 2, or 3 hrs. per quarter). Pr., acceptable singing of songs from MU 186.

Tone production, vocal resonance and mastery of correct breathing, vowels and consonants in their relation to the singing and speaking voice; vocalises and arpeggios; songs of moderate difficulty in correct intonation and interpretation. Italian classics recommended.

384-85-86. Voice II (1, 2, or 3 hrs. per quarter). Pr., acceptable singing of songs from MU 286.

Continuation of voice production, drill in diction and phrasing. French, German or Italian art songs. Contemporary American composers. Oratorio or opera arias.

484-85-86. Advanced Voice (1, 2, or 3 hrs. per quarter). Pr., acceptable singing of works from MU 386.

Song literature, including the works of Brahms, Schumann, Wolf, Schubert, and French masters. Concentration of perfecting vocal techniques on performer's level.

Organ**087-88-89. Elementary Organ (No credit).**

Introduction to organ playing; Jennings, *First Elements of Organ Technics*. Studies for manuals and pedals. The technique of hymn-playing, Telemann, *Choral Preludes*.

187-88-89. Intermediate Organ (1, 2, or 3 hrs. per quarter). Pr., MU 089 or equivalent.

Technical studies for manuals and pedals. Elementary improvisation. Transcription at sight from simple piano accompaniments. Bach, short Preludes and Fugues (E Minor, G Minor); Chorale Preludes for manuals.

287-88-89. College Organ I (1, 2, or 3 hrs. per quarter). Pr., MU 189 or equivalent.

Continued improvisation and technical studies. Principles of modulation. Bach, short Preludes and Fugues, Choral Preludes from "The Liturgical Year." Reger, *Chorale Preludes*.

387-88-89. College Organ II (1, 2, or 3 hrs. per quarter). Pr., MU 289.

Technical equipment for organ works of more than medium difficulty. Bach, *Chorale Preludes*, *Prelude and Fugue in E Minor*, *Fugue in G Minor*; Mendelssohn, *Second Sonata*; Franck, *Prelude, Fugue and Variations*. Selected works by Buxtehude, Liszt, Rheinberger, Karg-Elert, Guilmant and others.

487-88-89. Advanced Organ (1, 2, or 3 hrs. per quarter). Pr., MU 389.

Senior course embracing the more difficult organ literature, such as the larger works of Bach; Mendelssohn, *Preludes and Fugues*, and *Sonatas*; Franck, *Chorales*, *Organ Symphonies* by Widor and Vierne. Modern compositions and shorter recital pieces.

Instrumental

Strings

091-92-93. Elementary Strings (No credit).

Rudiments of producing tone, bowing, fingering and scales in one octave, as found in the first position. Simple pieces and studies.

191-92-93. Intermediate Strings (1, 2, or 3 hrs. per quarter). Pr. MU 093.

Individual instruction in playing a selected instrument in strings. Training in technical facility in major and minor scales, and arpeggios in all scales, and in simple solo works. For violin, such pieces will be of the difficulty of: Kreutzer Etudes, No. 1-32; the Viotti Concerto, No. 23; the deBeriot Concerti, No. 7 and 9; and the Tartini G minor Sonata. For other string instruments, pieces of a comparable level will be selected.

291-92-93. Strings I (1, 2, or 3 hrs. per quarter). Pr., MU 193.

Mastery of techniques for scales and broken chords in three octaves. Continued study in solo playing. Violin etudes; Kreutzer, Fiorillo, Mazas. Pieces of medium difficulty; Mozart, Handel and Schubert sonatas. Concerti: Vivaldi, A minor, Viotti No. 22, Mozart M major, deBeriot Nos. 7 and 9.

391-92-93. Strings II (1, 2, or 3 hrs. per quarter). Pr., MU 293.

Scales and broken chords at increased tempo, double stops. Etudes: Shode, Rovelli, Wieniawski. The easier Bach sonatas for violin and piano; Spohr concerti No. 2, 6, 9. All students should give evidence of ability to read at sight compositions of moderate difficulty, and should demonstrate ability in ensembles, and symphonic works.

491-92-93. Advanced Strings (1, 2, or 3 hrs. per quarter). Pr., MU 393.

Virtuoso instrumental literature. Etudes: Wieniawski, Locatelli caprices, Bach solo sonatas, Paganini caprices. Concerti: Mendelssohn, Lalo, St. Saens.

Woodwind

094-95-96. Elementary Woodwind (No credit).

Tone production, fingering and scales in simple keys.

194-95-96. Intermediate Woodwind (1, 2, or 3 hrs. per quarter). Pr., MU 096.

Training in facility and control of intonation, embouchure, phrasing and control.

294-95-96. College Woodwind I (1, 2, or 3 hrs. per quarter). Pr., MU 196.

Continued study for students who have had foundational training. The student finishing this course should be able to play 1st chair parts in school bands or 2nd chair parts in school symphonies. Studies: Klose, Book 1 for clarinets; Nieman-Labate for Oboe; Pares for Flute and Weissenborn (1st half) for Bassoon.

394-95-96. College Woodwind II (1, 2, or 3 hrs. per quarter). Pr., MU 296.

Further study in technical methods outlined above. Special stress on expression, and interpretation; solo passages from standard symphonic work.

494-95-96. Advanced Woodwind (1, 2, or 3 hrs. per quarter). Pr., MU 396.

Advanced study with special emphasis on training in outstanding pieces of literature; designed to prepare the student for his major Senior Recital, as well as the mastery of his instrument.

Brass

097-98-99. Elementary Brass (No credit).

Rudiments of tone production, fingering, and reading music.

197-98-99. Intermediate Brass (1, 2, or 3 hrs. per quarter). Pr., MU 099.

Development of tone production and special techniques of the individual instrument; including scale and chord work in all major keys.

297-98-99. College Brass I (1, 2, or 3 hrs. per quarter). Pr., MU 199.

Scales and chord work in all keys, technique exercises of medium difficulty, and some work in easy literature.

397-98-99. College Brass II (1, 2, or 3 hrs. per quarter). Pr., MU 299.

Continuing techniques study involving difficult etude study, flexibility exercises, and difficult scale and chord work in all keys. Literature study of medium and medium difficult works written by the master composers.

497-98-99. Advanced Brass (1, 2, or 3 hrs. per quarter). Pr., MU 399.

Continuing literature study involving the most difficult of the great works for the instrument; development of a high degree of musicianship to prepare the student for public performance.

Courses in Applied Music are open to any student of the institution upon permission of the head of the department. Courses may be taken with or without academic credit. Admission to courses on the 200, 300, and 400 levels will be granted only after the student has demonstrated fulfillment of the prerequisite by passing

satisfactorily a performance test based on typical exercises and compositions selected from the preceding course.

Since achievement in music is cumulative, it will normally take three quarters of study to meet the requirements for each successive grade of execution. These requirements conform to standards established by the National Association of Schools of Music.

Each course in Applied Music with an individual instructor is based on one half-hour lesson per week for the academic quarter. Many students, however, desire two half-hour lessons per week. Such an arrangement is advantageous to the student and can be made, but it does not carry additional credit.

The amount of credit in Applied Music is based on the following practice schedule:

- 1 cr. hr.—4 hours weekly practice
- 2 cr. hrs.—8 hours weekly practice
- 3 cr. hrs.—12 hours weekly practice

Only MU students in the BA or BM degree curricula may receive more than 1 hour credit per quarter for each applied music course.

Applied Music Fees (Per Quarter)

One half-hour lesson per week	\$20.00
Two half-hour lessons per week	30.00
Class instruction in piano, etc.	5.00
Use of practice room, one hour per day	3.00
Use of practice room, two hours per day	5.00
Instrumental rental	3.00

Class Instruction in Applied Music

The Music Department offers a number of classes in Applied Music open to Music Majors and Minors and to regularly registered college students who have had previous music training. These classes meet two hours per week and carry one hour credit. Tuition fee \$5.00. (Minimum of 12 students per class.)

104-5-6. Piano Class (1-1-1). (2-2-2 lec. and lab.).

Class instruction and practice in the rudiments of music as applied to piano playing. (See above for fee.)

107-8-9. Voice Class (1-1-1). (2-2-2 lec. and lab.).

Class instruction and practice in the rudiments of music as applied to voice. (See above for fee.)

110-11-12. String Instruments Class (1-1-1). (2-2-2 lec. and lab.).

Class instruction and practice in the rudiments of music as applied to violin, viola, cello and contrabass playing. (See above for fee.)

113-14-15. Brass Instruments Class (1-1-1). (2-2-2 lec. and lab.).

Class instruction and practice in the rudiments of music as applied to playing on trumpet, trombone and other brass instruments. (See above for fee.)

116-17-18. Woodwind Instruments Class (1-1-1). (2-2-2 lec. and lab.).

Class instruction and practice in the rudiments of music as applied to playing on clarinet, oboe, bassoon, flute and other woodwind instruments. (See above for fee.)

119. Percussion Instruments Class (1). (2 labs.)

Class instruction and practice in the rudiments of music as applied to playing percussion instruments: drums, bells, cymbals, triangles, tympani, etc. (See above for fee.)

GRADUATE COURSES

422-3-4. Theory Review (3-3-3). Pr., senior standing and departmental approval.

No credit for Applied, Theory-Composition, or Pedagogy majors. A review of the harmonic techniques of the 18th and 19th centuries, with special emphasis on style and design.

600-1-2. Advanced Instrumental and Choral Conducting (2-2-2).

Laboratory for development of skills relating to the performance of traditional and modern works. Emphasis on score reading and analysis.

603. Brass Instruments Techniques (1). Lec. 1, Lab. 3.

Course designed to work out specific problems with graduate students in furthering their knowledge of and skill on brass instruments.

604. Woodwind Instruments Techniques (1). Lec. 1, Lab. 3.

Course designed to work out specific problems with graduate students in furthering their knowledge of and skill on woodwind instruments.

605. Percussion Instruments Techniques (1). Lec. 1, Lab. 3.
Course designed to work out specific problems with graduate students in furthering their knowledge of and skill on percussion instruments.
609. Seminar in 20th Century Music (3-3-3). Pr., departmental approval.
Analysis and comparison of representative works of principal composers of the first half of the 20th century. Specific works chosen for each quarter. (May be repeated for a maximum of 9 hrs. credit.)
634. Music History Seminar (2). Pr., departmental approval.
An in-depth study of different aspects of the history of music. Specific research areas chosen each quarter. (May be repeated for a maximum of 6 hrs. credit.)
644. Repertoire Seminar (2-2-2). Pr., departmental approval.
A study of the literature of wind instruments through analysis and performance. (May be repeated for a maximum of 6 hrs. credit.)
- 650-1-2. Techniques of Private Instrumental Instruction (3-3-3). Pr., departmental approval.
Analysis of teaching and supervised teaching.
- 660-1-2. Independent Study in Applied Music (3-3-3). Pr., departmental approval.
Advanced private study and recital.
- 665-6. Advanced arranging (5-5). Pr., MU 479 or departmental approval.
Advanced arranging and transcription for band, orchestra, and chorus.
- 681-2-3. Independent Study in (A) Composition, (B) Analysis (2-3, 2-3, 2-3). Pr., departmental approval.

Naval Science (NS)

(List of courses will be found on page 142.)

Pharmacy (PY)

Dean Coker

Professors Coker, Hargreaves, Hocking, and Williams

Associate Professors Blanton, Rash, Thomasson, and Wilken

Assistant Professor Kochhar

Instructor Crevar

Research Lecturers in Toxicology Carl J. Rehling and Paul E. Shoffett

Pharmacy

100. Pharmacy Convocation (0). All quarters.
Required of all pharmacy students each quarter. Professional topics discussed by visiting lecturers, faculty and students.
101. Introduction to Pharmacy (3).
Orientation and general survey of the scope of pharmacy, its organizations and literature with a brief introduction into principles of pharmacy.
102. Pharmaceutical Arithmetic (5). Pr., MH 122.
Calculations necessary to the practice of pharmacy. Among the topics treated are weights and measures, specific gravity, specific volume, percentage solutions, concentration and dilution, alligation and commercial calculations.
202. Pharmaceutical Terminology (2). Pr., third year standing.
Common terms and abbreviations used in the professional and scientific aspects of pharmacy and medicine.
205. History of Pharmacy (3). Pr., PY 101.
A general survey of the history of pharmacy designed to provide a knowledge of the heritage of the profession.
300. Professional Accessories (3). Pr., fourth year standing.
The use and capabilities of non-medical professional items such as clinical thermometers, rubber goods, and accessories, atomizers, surgical dressings, surgical supports, trusses.
301. Pharmaceutical Technology I (5). Lec. 3, Lab. 6. Pr., CH 208, PY 102, fourth year standing.
Physical-chemical principles applied to develop thorough understanding of solid pharmaceutical dosage forms from bulk powders to more sophisticated sustained-release medications.
303. Pharmaceutical Technology II (5). Lec. 3, Lab. 6. Pr., PY 301, CH 206.
Continuation of PY 301 in which physical and chemical principles concerning homogeneous liquid dosage forms are studied. Selected official solutions, syrups, elixirs, spirits, etc., are considered from this viewpoint.

- 304. Pharmaceutical Technology III (5).** Lec. 3, Lab. 6. Pr., PY 303.
Continuation PY 303 dealing with heterogeneous and plastic systems. Physical and chemical principles utilized in the study of the plastic and polyphasic dosage forms including ointments, creams, suspensions, colloids, mixtures, magmas, etc.
- 308. Hospital Pharmacy Administration (3).** Pr., fourth year standing.
The development of hospitals, their place in society, importance and place of pharmacy in hospitals, administrative and policy making aspects together with indepartmental relationships. Field trips to representative hospital pharmacies.
- 400. Dispensing Pharmacy I (5).** Lec. 3, Lab. 6. Pr., PY 304.
Compounding of prescriptions of an elementary nature, illustrating virtually all types of prescriptions.
- 401. Dispensing Pharmacy II (5).** Lec. 3, Lab. 6. Pr., PY 400.
Advanced dispensing pharmacy and prescription laboratory. Prescriptions of an advanced nature are compounded. Special attention is given to the subject of incompatibilities.
- 402. Dispensing Pharmacy III (5).** Lec. 3, Lab. 6. Corequisite, PY 401.
Practical pharmaceutical compounding and dispensing, related to modern drug outlets. Certain aspects of drug detailing will be discussed.
- 410. Advanced Dispensing Pharmacy (5).** Lec. 3, Lab. 6. Pr., PY 401, junior standing.
More complex problems in dispensing pharmacy with correlated laboratory work.
- 411. Elements of Pharmaceutical Manufacturing (5).** Lec. 2, Lab. 9. Pr., PY 304, consent of instructor, and junior standing.
Manufacturing procedures, operation, and principles. In the laboratory selected pilot scale production problems are carried out to completion including control and testing of finished products.
- 412. Public and Professional Relations (3).** Pr., fourth year standing.
- 413. Special Problems (1-8).** Pr., fourth year standing.
- 414. Pharmaceutical Specialties (3).** Pr., fifth year standing.
More important non-official specialties available to modern prescription practice and over-the-counter sales are studied.

COURSES FOR GRADUATE STUDENTS

- 601. Parenteral Preparations (5).** Lec. 3, Lab. 6. Pr., 401 and consent of instructor.
Theory, preparation and testing of various medicinal preparations intended for injection into the body. Pharmaceutical principles are applied to problems of filtration, sterilization, isotonicity, hydrogen ion concentration and aseptic techniques.
- 602. Tablet Manufacture (5).** Lec. 2, Lab. 9. Pr., PY 401.
Essentials in the manufacture, coating and evaluation of compressed tablets.
- 603. Product Development (5).** Lec. 3, Lab. 6. Pr., PY 401.
Formulation, evaluation and control techniques as well as actual manufacture of products of pharmaceutical and cosmetic nature.
- 608. Biopharmaceutics (3).** Lec. 2, Lab. 3. Pr., consent of instructor.
The relationship between some of the chemical and physical properties of drugs and their effects on biological responses.
- 609. Institutional Pharmacy (5).** Lec. 4, Lab. 3. Pr., PY 401 and consent of instructor.
Comprehensive presentation of the development, responsibilities, classification, organization and administration of the pharmacy in hospitals, nursing homes, etc., from the viewpoint of the administrative pharmacist. The responsibilities of the director of pharmacy service in a hospital. Field trips taken and a term project on a current aspect of Institutional Pharmacy is required.
- 680. Graduate Seminar (1).** Pr., admission to Graduate School.
Required of all pharmacy graduate students each quarter.
- 695. Special Problems (2-5 hours).** Pr., consent of instructor.
May repeat for a maximum of 8 hours.

Pharmaceutical Chemistry

- 201. Inorganic Pharmaceutical Chemistry (5).** Pr., CH 105, 206.
Inorganic chemicals; their manufacture, chemical properties, pharmaceutical and therapeutic uses, doses and preparations. Tests for identity and purity, together with assay methods are considered.
- 203. Organic Pharmaceutical Chemistry (5).** Pr., PY 201, CH 207-208.
Organic chemicals; their manufacture, chemical properties, trade names, pharmaceutical and therapeutic uses, doses and preparations.

302. **Organic Pharmaceutical Chemistry (5).** Pr., PY 203.
Continuation of PY 203.
305. **Pharmaceutical Assay (3).** Lec. 1, Lab. 6. Pr., CH 206, CH 208.
Pharmaceutical assay procedures not covered in general quantitative analysis, physical and chemical constants of fatty oils, proximate assay of vegetable drugs, official arsenic test, alcohol determination and the assay of alkaloidal drugs.
404. **Chemistry of Natural Products (5).** Pr., CH 301 and junior standing.
Chemistry and nomenclature of fatty oils, volatile oils, steroids, glycosides, alkaloids, antibiotics, vitamins, and other natural products.
421. **Advanced Inorganic Pharmaceutical Chemistry (5).** Pr., PY 201 and junior standing.
Modern structural concepts of atomic and molecular theory, and reaction mechanisms of inorganic chemicals of medicinal importance.

COURSES FOR GRADUATE STUDENTS

- 620-21-22. **Chemistry of Synthetic Drugs (5-5-5).** Pr., PY 302 or consent of instructor.
Historical background, pertinent literature, organic name reactions, nomenclature, relation of chemical structure and physical properties to biological activity, isosterism, metabolite antagonism, enzyme inhibition, an exhaustive consideration of the chemistry and biological activity of the various therapeutic classes.
- 623-24-25. **Synthesis of Drugs (5-5-5).** Lec. 2, Lab. 9. Coreq., PY 620-21-22 or consent of instructor.
Laboratory procedures in the synthesis of intermediates and representative compounds studied in PY 620-21-22.
- 626-27. **Analytical and Control Methods (5-5).** Lec. 3, Lab. 6. Pr., PY 305 or consent of instructor.
Extensive study of the principles and techniques of analysis as applied to the various therapeutic classes.
628. **Steroid Chemistry (5).** Pr., PY 620 or consent of instructor.
Structure determination, chemistry, synthesis and structure relationships of steroids of pharmacological and pharmaceutical importance.
629. **Alkaloid Chemistry (5).** Pr., PY 620 or consent of instructor.
Structure determination, chemistry and synthesis of alkaloids with emphasis on the alkaloids of pharmacological and pharmaceutical importance.
660. **Heterocyclic Medicinal Chemistry (5).** Pr., consent of instructor.
A course devoted to the study of the chemical nature and behavior of heterocyclic moieties which are either themselves of medicinal significance or are components possessing therapeutic properties.

Pharmacology-Toxicology

309. **Pharmacology I (5).** Lec. 4, Lab. 3. Pr., ZY 101-102.
Essentials of anatomy and physiology as a basis for pharmacodynamics with emphasis on the nervous and cardio-vascular systems.
403. **Toxicology (5).** Pr., PY 309, CH 208 and junior standing.
Fundamentals of the isolation, identification, symptoms and treatment of the more common poisons.
405. **Pharmacology II (5).** Lec. 4, Lab. 3. Pr., PY 309 or equivalent, CH 301 and junior standing.
Absorption and fate, mechanism of action, pharmaco-chemical relationships and toxicology of the official and more important non-official drugs, with a brief coverage of pathological conditions which indicate specific uses in therapy.
406. **Pharmacology III (5).** Lec. 4, Lab. 3. Pr., PY 405.
Continuation of PY 405. Topics for consideration are the vitamins, hormones, biologicals and antibiotics with major emphasis on endocrine products and deficiency states as related to specific therapy.
407. **Chemotherapeutic Drugs (5).** Pr., PY 309.
Structure, action relationship of drugs and their use in inhibiting or destroying microorganisms.
428. **Public Health (5).** Pr., VM 200, VM 204 or VM 311 and junior standing.
Common communicable diseases including the course and symptoms of the disease, the causative agents, mode of transmission, and control measures including hygienic and sanitation measures as well as immunization procedures. A survey of federal and state health agency activities is included.
429. **Biochemical Pharmacology (3).** Lec. 1, Lab. 6. Pr., CH 301 and junior standing.
Application of biochemical principles and techniques in the study of mechanisms of drug action.

430. **Pharmacological Techniques (5).** Lec. 4, Lab. 3. Pr., PY 309 and junior standing.
Principles and techniques of surgical procedures used in drug testing with animals, including preparation of the animal, asepsis, and care of surgical instruments.
431. **Cellular Pharmacology (5).** Lec. 4, Lab. 3. Pr., PY 405-6 and junior standing.
Cytological basis of pharmacodynamics including metabolic energy transformation, protein synthesis, and cellular control systems as related to drug actions.
432. **Fundamentals of Bionucleonics (3).** Lec. 2, Lab. 3. Pr., PS 206 or consent of instructor and junior standing.
Theoretical and practical application of trace level radioactivity for research, application to pharmacy and allied sciences.

COURSES FOR GRADUATE STUDENTS

630. **Toxicological Methods (3).** Lec. 1, Lab. 6. Pr., PY 403, or equivalent.
Techniques applied to the separation and chemical identification of the more common volatile, non-volatile organic and metallic poisons.
- 631-632. **Psychopharmacology (5-5).** Lec. 4, Lab. 3-Lec. 3, Lab. 6. Pr., 431 for 631 and PG 320 or PG 445 for 632.
Effect of neurotropic and psychotropic agents upon reverberatory circuits, chemical transmitters, neural amines, and metabolic energy systems; measures of rate of behavioral change; critique of behavioral screening techniques.
633. **Bioassay (5).** Lec. 3, Lab. 6. Pr., PY 430, MH 127 or an equivalent course in statistics.
Statistical basis for design of experiments and analysis of data in pharmacological quantitation.
637. **Pharmacology Seminar (3).** Pr., PY 430.
638. **Toxicology Seminar (1-3).** Pr., graduate standing.
Students are expected to present reviews of current literature and case histories. This will be followed with discussion by students and faculty.
- 650-651. **Advanced Toxicology (5-5).** Lec. 3, Lab. 6. Pr., PY 630 or equivalent.
Lectures include the mechanism of action of poisons and antidotes, lethal doses, and methods of detection and quantitation of poisons in tissues and body fluids. Laboratory work embraces practical application of analytic procedures stressing modern instrumentation for the micro and semimicro detection and estimation of poisons in post-mortem and clinical specimens. The student will participate in a minimum of four post-mortem examinations with instructions in proper technique to obtaining specimens for toxicological analyses.
652. **Forensic Toxicology (3).** Pr., consent of instructor.
This course embraces a summary of medical jurisprudence including the laws governing the practice of forensic toxicology in criminal and civil prosecution. Collection, preservation and chain of evidence, and testimony in courts are stressed.

Pharmacognosy

306. **Pharmacognosy I (5).** Lec. 4, Lab. 3. Pr., ZY 102, BY 205; Coreq., CH 207.
Plant and animal drugs studied from a basic biological standpoint, including classification (taxonomy), morphology, histology, microscopy, biogeography, and related features.
307. **Pharmacognosy II (5).** Lec. 4, Lab. 3. Pr., CH 301, PY 306.
Biochemical presentation of drugs of natural origin including morphology, histology, mode of production, medicinally active constituents, assays and applications.
440. **Histology of Natural Products (3).** Lec. 2, Lab. 4. Pr., consent of instructor and junior standing.
Micro-chemical, micro-analytical, and micro-sectioning techniques, including methods of fixation, dehydration, embedding, and staining tissues in the preparation of permanent mounts of microslides, with use of microtome and micro-dissection techniques.
441. **Commercial Pharmacognosy (3).** Pr., consent of instructor.
Commercial aspects of crude drugs, both wild and cultivated, foreign and domestic; composition and application of pesticides.

COURSES FOR GRADUATE STUDENTS

640. **Advanced Pharmacognosy (5).** Lec. 3, Lab. 6. Pr., PY 307 or equivalent.
Comprehensive study of both official and unofficial crude drugs conducted macroscopically and microscopically; techniques of use of camera lucida, microtome, and microphotographic equipment; pharmacognosy of previously undescribed drugs.
641. **Advanced Microanalysis (5).** Lec. 3, Lab. 6. Pr., permission of instructor.
Methods of microscopy and microchemistry of natural materials and compounds.

642. **Histology of Medicinal Plants (5).** Lec. 3, Lab. 6. Pr., PY 440.
Microscopic structure of medicinal plants in fresh or preserved state as related to the origin and fate of plant compounds.
699. **Research and Thesis (5).**

Pharmacy Administration

204. **Drug Marketing (3).** Pr., EC 200, PY 101.
Basic principles of marketing drug products from the manufacturer to the consumer.
408. **Pharmaceutical Economics (5).** Pr., EC 200, EC 211, PY 204.
Elements of drug store management; drug store layout, buying, sales production, salesmanship, merchandising, and other affiliated considerations in the successful operation of a retail pharmacy.
415. **Pharmaceutical Jurisprudence (3).** Pr., fifth year standing.
Legal aspects of pharmaceutical practice, giving primary consideration to State and Federal regulations bearing thereon.

Philosophy (PA)

Professor J. H. Melzer

Assistant Professors Andelson, Davis, McKown, and Walters

Instructor Thompson

202. **Ethics and Society (5).**
Broad survey of human values as expressed in customs, institutions, politics, and philosophies of principal world civilizations. Ethics in this sense shown as grounded in and influencing the total culture of a people.
301. **Introduction to Philosophy (3).** General elective.
Introductory survey of the basic philosophical problems underlying western civilization.
302. **Introduction to Ethics (3).** General elective.
Introduction to the general principles of morality and human conduct.
307. **Scientific Reasoning (5).**
Principles of logical reasoning used by scientists and others. (Not open to students with credit in PA 308.)
308. **Introduction to Logic (3).** General elective.
Principles of logical thinking with emphasis upon a functional application of these principles.
310. **Eastern Religious Thought (3).** General elective.
Readings from primary and secondary sources related to Hinduism, Jainism, Buddhism, Taoism, Confucianism, Shintoism, and Sikhism.
315. **Western Religious Thought (3).** General elective.
Readings from primary and secondary sources related to Ancient Egyptian, Mesopotamian, and Greek religions, Judaism, Zoroastrianism, Christianity, and Islam.
325. **Aesthetics (5).**
Inquiry into the history of aesthetic theory for the purpose of determining foundations of critical reflection on the arts of literature, drama, painting, sculpture, architecture, and music.
330. **Philosophy of Religion (5).**
Philosophical examination of religious ideas including such topics as the origin of religion; the nature of religion; the various concepts of God, the soul, immortality; and internal and external criticisms of religion.
400. **Philosophy of Science (5).** Pr., junior standing.
Implications for human values of some important concepts and methods in the social and natural sciences.
401. **The Philosophy of Communism (5).** Pr., junior standing.
Primarily a study of the theory, practice, and social motivation of Marxism, but with some additional studies in peripheral areas.
402. **Existentialism (5).** Pr., junior standing.
Examines a type of philosophy which approaches the problem of being through a careful analysis of the basic structures of human existence.
403. **Symbolic Logic (5).** Pr., junior standing.
Extended treatment of symbolic logic. (PA 308 is desirable but not necessary for this course.)
404. **Modern Ethical Theories (5).** Pr., junior standing.
Problems and methods in contemporary moral philosophy.
410. **Ancient and Medieval Philosophy (5).** Pr., junior standing.
Philosophical thought of ancient Greece and Rome, and of medieval Christendom.

420. **Modern Philosophy (5).** Pr., junior standing.
Philosophical thought from Descartes through Kant.
425. **Nineteenth Century Philosophy (5).** Pr., junior standing.
Philosophical Thought in Germany, England, and France from 1800-1900.
430. **Contemporary Philosophy (5).** Pr., junior standing.
Philosophical thought from James through the present time.
440. **American Philosophy (5).** Pr., junior standing.
American philosophical thought from colonial times to William James.
455. **Metaphysics (5).** Pr., two courses in Philosophy and junior standing.
A study of the major theories of the ultimate nature of reality.
460. **Epistemology (5).** Pr., two courses in Philosophy and junior standing.
A study of the origin, nature, kinds, and validity of knowledge, with a consideration of such topics as faith, intuition, belief, opinion, certainty, and probability.
470. **Plato (5).** Pr., junior standing.
A rather exhaustive study of Plato's major works together with a survey of his other productions.
475. **Aristotle (5).** Pr., junior standing.
The study of Aristotle's philosophy with special emphasis on epistemology, metaphysics, ethics, and psychology. His relation to his predecessors and his central role in western thought are also examined.
650. **Seminar (5).** Pr., graduate standing and permission of instructor.
Content will change each quarter in a calendar year, varying from movements of thought to intensive study of one of the great thinkers such as Plato or Whitehead.

Physics (PS)

Head Professor Carr

Professors Alford, and Hughes

Associate Research Professors Budenstein, and Fromhold

Associate Professors Askew, French, Latimer, Mowat, and Sparks

Assistant Professors Harlan, Thaxton, and Ward

Assistant Professor and Research Associate Garmon

Instructors Horton, and Forsythe

201. **General Physics—Mechanics (5).** Lec. 4, Lab. 3. Pr., MH 263 (or concurrently).
The first of three quarters in a basic physics course comprising PS 201-202-203. For students in chemistry, engineering, physics and engineering physics.
202. **General Physics—Sound, Heat, and Electricity (5).** Lec. 4, Lab. 3. Pr., PS 201; MH 264 (or concurrently).
203. **General Physics—Electromagnetism and Light (5).** Lec. 4, Lab. 3. Pr., PS 202; MH 264.
204. **Foundations of Physics (5).** Credit in PS 201 and 205 excludes credit for this course.
The basic principles of mechanics, heat, light, sound, electricity and magnetism and selected topics. For students in aeronautical administration, agricultural and industrial arts education, industrial design, and home economics.
205. **Introductory Physics—Mechanics, Heat and Sound (5).** Lec. 4, Lab. 3. Pr., MH 122 or 160.
The first half of a two-quarter course in the fundamentals of physics. The quantitative as well as the qualitative aspects of the subject are stressed. For students in architecture, forestry, laboratory technology, pharmacy, pre-dentistry, pre-medicine, pre-veterinary, medicine, industrial management, and science and literature. The weekly three-hour laboratory periods are devoted to the performance of appropriate experiments.
206. **Introductory Physics—Electricity and Light (5).** Lec. 4, Lab. 3. Pr., PS 205.
Continuation of PS 205.
210. **Pre-Medical Physics (5).** Lec. 4, Lab. 3. Pr., PS 206.
Introduction to modern physics, including atomic structure, nuclear physics, x-rays, and special relativity.
217. **Astronomy (3).** General elective.
Descriptive astronomy, accompanied by occasional observations of the heavenly bodies with a three-inch refracting telescope.
301. **Intermediate Electricity and Magnetism (5).** Lec. 4, Lab. 3. Pr., PS 203, MH 361.
Phenomenological development of classical electricity and magnetism leading to the formation of Maxwell's equations. Topics include: laws of Coulomb, Gauss, Ampere, and Faraday; properties of dielectric and magnetic media, a.c. circuit theory, Maxwell's displacement current, and an introduction to plane waves.

302. **Electronics (5).** Lec. 4, Lab. 3. Pr., PS 301.
Review of AC and DC circuits; theory of vacuum tubes and semiconductors; diodes as rectifiers and regulators; tube and transistor voltage and power amplifiers; feedback amplifiers and oscillators; pulse and digital circuits. Appropriate laboratory exercises form a part of the course.
303. **Optics (5).** Lec. 4, Lab. 3. Pr., PS 202, MH 264.
Intermediate course in physical optics comprising wave motion, reflection, refraction, dispersion, origin of spectra, interference, diffraction, and polarization, with appropriate laboratory experiments.
304. **Applied Spectroscopy (5).** Lec. 4, Lab. 3. Pr., PS 202, MH 263.
The more important concepts of the origin of spectra; a study of instruments and techniques of practical spectroscopy. Laboratory experiments designed to give students in both Chemistry and Physics a working knowledge of spectroscopy as a tool.
305. **Introduction to Modern Physics (5).** Lec. 4, Lab. 3. Pr., PS 202-203, MH 264.
Introduction to selected topics of modern physics, including atomic structure, X-rays, classical and quantum statistics, quantum mechanics, special relativity, and nuclear physics.
330. **Fundamentals of Physics (10).** Demonstration lecture 3, lecture-recitation 7, laboratory 4, seminar 1. Pr., MH 160 (or concurrently). Offered Summer only by special arrangement.
An introductory course in physics using PSSC materials in which the fundamental principles of optics, mechanics, electricity and magnetism are stressed. Designed to meet the needs of secondary school physics teachers with a limited background in physics who are enrolled in the Physics Summer Institute.
401. **Theoretical Physics I—Mechanics (5).** Lec. 4, Prob. 2. Pr., junior standing, PS 203, MH 361.
Newton's laws; systems of particles; conservation laws; free, damped, and forced oscillations; introduction to calculus of variations.
402. **Theoretical Physics II—Mechanics Continued (5).** Lec. 4, Prob. 2. Pr., junior standing, PS 401.
Calculus of variations; Hamilton's Principle and Lagrange's equations; vibrating systems; vector analysis; dynamics of rigid bodies.
403. **Theoretical Physics III (5).** Lec. 4, Prob. 2. Pr., PS 301, PS 402, junior standing.
Introduction to electromagnetic theory using the mathematics of vector fields. The physical interpretation of the different fields is stressed.
404. **Thermodynamics (5).** Pr., junior standing, PS 305, MH 362.
Equations of state. First and second laws of thermodynamics. The absolute temperature scale; the entropy, free energy, and Gibbs potential; general conditions of equilibrium. Application to reactions in gases and dilute solutions. Nernst's postulate.
405. **Nuclear Physics (5).** Lec. 4, Lab. 3. Pr., junior standing, PS 305, MH 264.
Nuclear radiations; transmutations; natural and artificial radioactivity; binding energy; nuclear forces; structure of the nucleus; nuclear fission and its applications. Appropriate laboratory experiments form a part of the course.
406. **Advanced Laboratory I (2).** Lab. 6. Pr., PS 301, 302, 305, junior standing.
Research oriented experiments will be selected in the areas of biophysics, plasmas, low temperature, high vacuum, wave propagation, nuclear and atomic spectroscopy, Mossbauer effect, Hall effect, mass spectrometry, advanced electronics, and other areas of current interest in research.
407. **Advanced Laboratory II (2).** Lab. 6. Pr., PS 406.
A continuation of PS 406.
408. **Advanced Laboratory III (2).** Lab. 6. Pr., PS 407.
A continuation of PS 407.
409. **Introduction to Reactor Physics I (5).** Lec. 4, Lab. 3. Pr., junior standing, PS 305, PS 405, MH 362, or permission of instructor.
Brief account of nuclear physics; basic instrumentation; interaction of neutrons with matter; chain reactions; neutron diffusion; the bare homogeneous thermal reactor; lattice constants; reactor kinetics.
410. **Introduction to Reactor Physics II (5).** Lec. 4, Lab. 3. Pr., junior standing, PS 409.
Homogeneous reactor with reflector; reactor control; power reactors; thermal aspects of reactor systems; design variables; radiation detection and measurement; shielding; radiation hazards.
412. **Seminar in Modern Physics (1).** Pr., senior standing.
Library search, written reports, and oral presentation of a pertinent topic in modern physics.

413. **Introduction to X-ray Crystallography (5).** Lec. 4, Lab. 3. Pr., junior standing, PS 305, or permission of instructor. Principles of crystallography, properties of x-rays, Laue and powder techniques, applications to crystal structure and grain size.
414. **Electron Optics and Microscopy (5).** Lec. 3, Lab. 6. Pr., junior standing and PS 203 and MH 264. Electron optics; theory and operation of the electron microscope; techniques of mounting, replication and shadowing of specimen; electron diffraction, theory and interpretation of patterns. Demonstration experiments and laboratory exercises constitute the experimental portion of the course.
415. **Introduction to Quantum Mechanics (5).** Pr., junior standing and PS 203, MH 361. The principles of quantum mechanics stressing the physical interpretation of the theory with applications to certain selected phenomena of modern physics.
417. **Introduction to Biophysics (4).** Pr., permission of the instructor, junior standing. Survey of the physics of biological systems; effects of light and high energy radiations, bio-electric phenomena, bio-energetics, etc.
421. **Advanced Electronic Circuits (5).** Pr., junior standing, PS 302. Advanced network and feedback theory; voltage regulators, oscillators; pulse and sweep generators; electronic instruments.
430. **Physics for High School Teachers I (4).** Lec. 3, Lab. 3. Pr., PS 204 or equivalent, junior standing. Fundamental laws in mechanics, heat, and sound with particular emphasis upon such broad principles as Newton's laws of motion, the conservation of energy and momentum, and the transfer of energy.
431. **Physics for High School Teachers II (4).** Lec. 3, Lab. 3. Pr., PS 430, junior standing. Fundamental laws in light, electricity, magnetism, and an introduction to some basic phenomena in atomic, molecular, and nuclear physics.
435. **Introduction to Solid State Physics (5).** Pr., MH 361, junior standing. Survey of solid state phenomena including latticed vibrations, band description of electronic states in metals, semiconductors and insulators, and magnetic phenomena.
470. **Health Physics (5).** Lec. 4, Lab. 3. Pr., permission of the instructor, junior standing. Fundamental principles of radioactivity; instrumentation for detecting and monitoring radioactive nuclides; radiation effects on man; permissible radiation dosages; safe handling of radioactive substances; and shielding from various radiations.

GRADUATE COURSES

601. **Advanced Dynamics I (3).** Pr., PS 402. D'Alembert's principle; introduction to the calculus of variation; Hamilton's principle and Hamilton's equations; principle of least action.
602. **Advanced Dynamics II (3).** Pr., PS 601. Canonical variables and contact transformations; the Hamilton-Jacobi equation; action; angle variables; Poisson brackets; continuous systems.
603. **Mechanics of Continuous Media (3).** Pr., PS 602. Introduction to theories of elasticity and fluids.
- 604-5-6. **Theory of Electricity and Magnetism I-II-III (3-3-3).** Pr., PS 403, Coreq., MH 607-8-9. Maxwell's formulation of classical electromagnetic theory. Includes electrostatics, magnetostatics, potential problems, electric currents, Maxwell's equations, electromagnetic waves, radiation theory, boundary value problems.
607. **Physical Optics (3).** Pr., PS 606. Application of Maxwell's equations to optical phenomena including Kirchhoff's formulation, propagation of electromagnetic waves in anisotropic media, double refraction, dispersion.
611. **Plasma Physics I (3).** Pr., PS 301, PS 402, or permission of instructor. Orbit theory, fluid model, Alfvén waves, plasma stability, and plasma radiations.
612. **Plasma Physics II (3).** Pr., PS 611 or permission of instructor. Theory of plasma waves, shocks, instabilities, and magneto-hydrodynamics.
617. **Modern Physics I (3).** Pr., PS 305, MH 404, or permission of instructor. Special theory of relativity; quantum mechanics with applications.
618. **Modern Physics II (3).** Pr., PS 617 or PS 641, or permission of instructor. Atomic and molecular spectra, quantum statistics; band theory of solids; x-rays.
619. **Modern Physics III (3).** Pr., PS 617 or PS 641, or permission of instructor. Nuclear physics, particles.

628. **Statistical Mechanics I (3).** Pr., PS 404, 601.
Statistical ensembles in classical mechanics, the Maxwell-Boltzmann distribution law. Boltzmann's H theorem, and an introduction to quantum statistical mechanics.
629. **Statistical Mechanics II (3).** Pr., PS 628.
Quantum mechanical H-theorem, applications, introduction to non-equilibrium statistical mechanics.
630. **Modern Physics for High School Teachers (5).** Lec. 4, Lab. 3. Pr., junior standing, PS 431 or equivalent, MH 487 or equivalent.
Survey of physics since 1890 including: structure of matter; atomic and molecular spectra; x-rays, natural and induced radioactivity; nuclear fission and fusion; and cosmic rays.
632. **Special Theory of Relativity (3).** Pr., PS 602, PS 605.
Relativistic mechanics, covariant formulation of Maxwell's field equations, Lagrangian and Hamiltonian formulation of fields.
635. **Solid State Physics I (3).** Pr., PS 435, PS 643.
Electrons in a perfect crystal lattice, quantum mechanical formulations of the many body problem, molecular bonding, description of the symmetry properties of solids.
636. **Solid State Physics II (3).** Pr., PS 635.
Brillouin Zones, cohesive energy, interaction of electrons with electromagnetic radiation interactions between electrons and the crystal lattice.
637. **Solid State Physics III (3).** Pr., PS 636.
Magnetic properties of solids; para-, dia-, ferro-, and antiferromagnetic effects. Resonance experiments, optical properties of solids.
639. **Directed Reading in Physics (2).** Pr., permission of instructor. (May be taken more than one quarter.)
641. **Quantum Mechanics I (3).** Pr., PS 402.
Action principle; Schrodinger's equation; operator formalism; bound state problems; angular momentum.
642. **Quantum Mechanics II (3).** Pr., PS 641.
Transformation theory; perturbation calculations; particle in electromagnetic field; radiative transitions.
643. **Quantum Mechanics III (3).** Pr., PS 642.
Scattering theory; S matrix; identical particles; applications.
- 644-5 **Advanced Quantum Mechanics I-II (3-3).** Pr., PS 632, or PS 643.
Dirac electron; field quantization; interactions; Feynmann diagrams; dispersion relations.
653. **Seminar in Physics (2).** Pr., permission of instructor. (May be taken more than one quarter.)
655. **Special Topics in Theoretical Physics (3).** Pr., permission of instructor.
Choice of topic will vary but will include: relativity theory; group theory; atomic and molecular structure; elasticity; fluid mechanics; quantum field theory; low temperature physics. (May be taken more than one quarter.)
661. **Nuclear Structure (3).** Pr., PS 405, PS 643.
Selected topics on properties of nuclei.
662. **Nuclear Processes (3).** Pr., PS 661.
Radioactive decay, nuclear reactions.
691. **Directed Reading in Contemporary Physics.** (Credit to be arranged.) Pr., completion of 30 hours of advanced courses in physics. (May be taken more than one quarter.)
699. **Research and Thesis.** (Credit to be arranged.)
799. **Research and Dissertation.** (Credit to be arranged.)

Political Science (PO)

Professor Partin

Associate Professors Williamson, Johnson, and Owsley

Assistant Professors McNorton, Metzger, and Wood

Instructor Olliff

206. **United States Government (5).** Pr., sophomore standing. (Credit in PO 209 excludes credit for this course.)
National, state, and local government.
209. **National Government (5).** Pr., sophomore standing. (Credit in PO 206 excludes credit for this course.)
The nature, theory and practice of national government in the United States.

- 210. State Government (5). Pr., sophomore standing.**
The nature, theory and practice of state and municipal government of the United States with emphasis on Alabama government.
- 407. Political Science (5). Pr., PO 206 or 209 and junior standing.**
The nature, scope, and methods of political science; the origin, forms, and functions of the state, with special emphasis on the development of political theory.
- 408. United States Political Parties (5). Pr., junior standing.**
Development of political parties, their policies and influence in United States history.
- 409. Constitutional History of the United States (5). Pr., junior standing.**
Origins and development of the Constitution of the United States.
- 410. Political Theory (5). Pr., junior standing.**
History of political thought from ancient times to the present.
- 411. Local Government (5). Pr., junior standing.**
County, city, and town governments, with particular emphasis on their operation in Alabama.
- 412. World Politics (5). Pr., junior standing.**
The political and international relations between the nations of the world, including the effect of the political and economic systems on these relations.
- 413. Public Administration (5). Pr., PO 206 or 209 and junior standing.**
Organizing and administering the institutions of government, with particular attention to the problems of reorganization of departmental structure, the civil service, and related personnel matters, and the role of personal relations and partisan politics in administration.
- 414. Comparative Government (5). Pr., PO 206 or 209 and junior standing.**
The governments of other nations, with emphasis on the contrast between the parliamentary system as exemplified in the governments of Great Britain, France, other Western European nations, and Canada, and the presidential system of the United States.
- 419. Southern Politics (5). PO 206 or PO 209 and 210 and junior standing.**
Regional politics emphasizing case studies, voting patterns, political strategy, current political groups and factionalism, taught from the viewpoint of political science rather than history.

Poultry Science (PH)

*Professors Moore, Cottier, and Edgar
Associate Professors Goodman, Howes, Johnson, and Mora*

- 202. Veterinary Poultry (5). Lec. 4, Lab. 2. Winter, Spring.**
Principles of poultry production and their application to students in Veterinary Medicine.
- 301. General Poultry Husbandry (5). Lec. 4, Lab. 2. Fall, Winter, Spring, Summer.**
Principles of poultry production and their application to general farm conditions, including breeding, feeding, housing, diseases, and culling.
- 302. Poultry Meat Production (3). Lec. 2, Lab. 2. Fall. Pr., PH 301.**
Practical problems involved in raising broilers, capons, and turkeys for meat production.
- 404. Poultry Management (5). Lec. 4, Lab. 2. Spring. Pr., PH 301 and junior standing.**
Poultry problems and management of commercial flocks.
- 405. Poultry Feeding (3). Fall. Pr., PH 301 and junior standing.**
Composition and use of poultry feeds in connection with the demands for growth, body maintenance, and egg production.
- 406. Incubation and Brooding (3). Lec. 2, Lab. 2. Winter. Pr., PH 301 and junior standing.**
Embryology of the chick, theory and practice of incubation and brooding.
- 407-09. Poultry Problems (3-3). Lec. 1, Lab. 4. Pr., 12 hours PH courses and junior standing. All quarters.**
Investigation on some phase of poultry work.
- 408. Poultry Diseases and Parasites (5). Lec. 4, Lab. 2. Winter. Pr., PH 301 and junior standing.**
Prevention, diagnosis, control, and treatment of the common diseases and parasites of poultry, designed especially for Agriculture students.
- 410. Poultry Breeding (3). Lec. 3. Spring. Pr., PH 301, ZY 300, and junior standing.**
Physiology of reproduction and inheritance of various poultry characters responsible for efficient egg and meat production and low mortality.
- 411. Poultry Marketing (3). Lec. 2, Lab. 2. Spring. Pr., PH 301 and junior standing.**
Grading eggs and poultry and study of problems of poultry marketing.

412. **Commercial Poultry Management (3). Lec. 4. Pr., graduate standing.**
Management practices and principles used in the business of producing market eggs, hatching eggs, broilers, and turkeys. (Credit for both PH 404 and PH 412 may not be used in meeting the requirements for the Master's degree.)
413. **Poultry Sanitation and Diseases (3). Lec. 4. Pr., graduate standing.**
Recommended sanitation practices and the prevention and control of common diseases and parasites of poultry. (Credit for both PH 408 and PH 413 may not be used in meeting requirements for the Master's degree.)
414. **Environmental Physiology and Bioengineering (5). Lec. 3, Lab. 4. Winter. Pr., ZY 424 or AN 302 or equivalent; senior standing; and consent of instructors.**
(This is the same course as AN 414.)
Practices and theories of environmental engineering and science directly applicable to animal environments. Physiological responses of animals to various environmental parameters.
422. **Avian Diseases (5). Lec. 4, Lab. 2. Fall.**
Diagnosis, treatment, and prevention of infectious and parasitic diseases. Clinical and autopsy demonstrations are performed during laboratory periods. (For Veterinary students only.)

GRADUATE COURSES

604. **Advanced Poultry Production (5). Lec. 5. Spring.**
Advanced studies on various phases of poultry production.
606. **Advanced Poultry Breeding (5). Lec. 4, Lab. 2. Fall.**
Advanced studies of the principles of heredity as applied to poultry breeding.
607. **Advanced Poultry Problems (2 to 5). All quarters. (May be taken more than once to a maximum of 5 hrs.)**
Assigned problems.
608. **Seminar. Credit to be arranged. Fall, Spring, Winter, Summer.**
Literature in Poultry Husbandry and other fields related to poultry. Emphasis will be given to the preparation, organization and presentation of research material by students and to reporting of current literature in the field. Designed for seniors in Poultry or Animal Husbandry as well as graduate students.
610. **Advanced Poultry Nutrition (5). Lec. 5. Summer.**
Advanced study of the nutrients, their function and the nutritional requirements of poultry.
611. **Advanced Poultry Management (5). Lec. 5. Summer.**
Advanced study of the principles of management of commercial poultry flocks.
612. **Advanced Poultry Diseases (5). Lec. 1, Lab. 8. Spring. Pr., PH 408 or consent of instructor.**
Isolation, cultivation, and identification of bacterial, fungal, and viral agents. Emphasis on biochemical aspects of microbial and nutritional diseases and the mechanisms of the immune response.
613. **Advanced Poultry Diseases (5). Lec. 1, Lab. 8. Summer. Pr., VM 418 and PH 612, or equivalent.**
Continuation of PH 612 with emphasis on those disease conditions caused by protozoa, helminths, and arthropods and the gross and histopathology of diseases studied in both quarters.
614. **Immunochemistry (5). Lec. 3, Lab. 4. Fall. Pr., general bacteriology, immunology and organic or biochemistry.**
Advanced study of the fundamental principles of immunology including specificity, antibody synthesis and the thermodynamics of antigen-antibody reactions. Laboratory will include the use of immunodiffusion, immunoelectrophoresis, fluorescent-antibody technique, and quantitation of the precipitin reaction.
615. **Avian Physiology (5). Fall. Pr., ZY 424 and organic chemistry.**
General physiology of birds with particular reference to domesticated species.
618. **Experimental Virology (5). Lec. 3, Lab. 4. Winter. Pr., VM 461, VM 495, CH 208, CH 420 or equivalent and permission of instructor.**
Advanced study of fundamental properties of plant, animal and bacterial viruses including biochemical and biophysical properties and mechanisms of infection. Laboratory includes isolation, purification and fractionation of viruses; identification of anti-viral agents using *in vitro* systems.
625. **Digestive and Renal Physiology (5). Spring. Pr., ZY 424 and organic chemistry.**
Review of the digestive and renal physiology of mammalian and avian species with special reference to body fluid homeostasis.
699. **Research and Thesis. (Credit to be arranged.) All quarters.**
Technical laboratory problems related to poultry.
799. **Doctoral Research and Dissertation. (Credit to be arranged.) All quarters.**

Pre-Engineering (PN)*Head Professor H. Strong*

101. **History of Engineering (1).**
 102. **Introduction to the Engineering Profession (1).** Pr., PN 101.
 103. **Engineering Methods (1).** Pr., PN 102.
 Use of analysis, experiment, and synthesis in the solution of engineering problems.

Psychology (PG)*Head Professor Spears**Professor McIntyre**Associate Professors Foshee, Irvine, and Lair**Assistant Professors Cahoon, Kelley, Moon, Smith, Turner, and Vallery**

101. **Orientation. (No credit.)**
 Explanation of the fields of experimental and professional psychology and of the educational backgrounds required to enter the various fields.
211. **Introduction to Psychology I (5).**
 Scientific study of human behavior emphasizing principles of learning, perception, and motivation.
212. **Introduction to Psychology II (4).** Pr., PG 211.
 Continuation of PG 211 emphasizing the development of complex behavior from birth to maturity.
213. **Human Development (5).**
 Physical, psychological, and social development of school age children. (Not open to students with credit in PG 212.)
214. **Educational Psychology (5).** Pr., PG 212 or PG 213.
 Intellectual development of school age children emphasizing experimental foundations of complex learning.
215. **Quantitative Methods in Psychology (4).** Pr., MH 161, PG 211.
 Introduction to the measurement of behavior and to quantitative methods of data analysis.
311. **Behavior of Man (3). General elective.**
 The science of behavior and a survey of the field of psychology. (Credit not allowed for both PG 211 and PG 311.)
320. **Experimental Psychology I: Learning (4).** Lec. 3, Lab. 3. Pr., PG 212, 215 (PG 215 may be taken concurrently).
 Experimental analysis of behavior modification emphasizing problems, concepts, and methods.
321. **Experimental Psychology II: Perception (4).** Lec. 3, Lab. 3. Pr., PG 212, 215 (PG 215 may be taken concurrently).
 Discrimination, generalization, and their physical and physiological correlates.
322. **Experimental Psychology III: Personality (4).** Lec. 3, Lab. 3. Pr., PG 320.
 Motivation, cognitive processes, and adaptive behavior.
330. **Social Psychology (4).** Lec. 3, Lab. 2. Pr., PG 212 or SY 203.
 Analysis of social behavior including roles, group identification, attitudes, and conflicts among these.
360. **Fields of Professional Psychology (5).**
 Contributions of psychology to medicine, education, law, and human engineering in industry. Not open to students majoring in Psychology.

Advanced Undergraduate and Graduate

415. **Psychological Testing (5).** Pr., junior standing and PG 322, or departmental approval.
 Theory of psychological testing with application to the measurement of aptitudes and various aspects of personality.
430. **Perception (4).** Pr., junior standing and PG 321, PG 322 or departmental approval.
 Theories of perception emphasizing both general and individual factors that influence meaning.
433. **Personality (4).** Pr., junior standing and PG 322 or departmental approval.
 Objective, phenomenological, and psychoanalytic theories of personality.

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434. **Personality Dynamics and Effective Behavior (5).** Pr., junior standing and ten hours of psychology.
Analysis of adaptive and maladaptive behavior. Not open to students majoring in psychology.
435. **Behavior Pathology (4).** Pr., junior standing and PG 433 or departmental approval.
Types of abnormal behavior and their social and biological origins.
440. **Physiological Psychology (4).** Pr., junior standing and 20 hours of biological sciences, or departmental approval.
Study of the physiological correlates of behavior, including sensory and response mechanisms, with special emphasis on central nervous system function.
445. **Animal Behavior (4).** Pr., junior standing and 20 hours of biological sciences, or departmental approval.
Analysis of unlearned and learned animal behavior and its evolutionary development, integrating the contributions of ethological and behavioristic research.
450. **Learning (4).** Pr., junior standing and PG 320 or departmental approval.
Theories of learning and their logical and empirical foundations.
451. **Advanced Educational Psychology (4).** Lec. 3, Lab. 3. Pr., junior standing and nine hours of psychology. Credit in PG 617 prior to Summer Quarter 1966 excludes credit in this course.
Analysis of conceptual learning and problems in programmed instruction.
461. **Industrial Psychology (5).** Pr., junior standing.
The uses of psychology in business and industry.
462. **Training and Supervision of Industrial Personnel (3).** Pr., junior standing.
Application of the principles of learning to the training of factory, office, and sales employees.
463. **Interviewing and Classifying Industrial Personnel (3).** Pr., junior standing.
Principles and practices in interviewing.
480. **History of Psychology (4).** Pr., junior standing and 20 hours psychology or departmental approval.
Evolution of psychology from physics, physiology, and philosophy to a science of behavior.
490. **Special Problems in Psychology (3 to 8; may be repeated for maximum of 8 hours).** Pr., junior standing, departmental approval.
An individual problems course. Each student will work under the direction of a staff member on some experimental or theoretical problem of mutual interest.

GRADUATE COURSES

601. **Enhancing Human Development (5).**
Examination of concepts such as the normal personality, the open person, the process person, and optimum development with emphasis on school and other environmental influences in their development.
610. **Modern Viewpoints in Psychology (5).**
Integration course examining a number of viewpoints in psychology, including structuralism, behaviorism, functionalism, purposive psychology. Gestalt psychology, and psychoanalysis.
611. **Advanced Psychometric Methods (5).** Pr., MH 127, PG 215, PG 320, PG 415, or permission of the instructor.
Continuation of the PG 340 which includes statistical theory of error and measurement, indices of reliability and validity, norm development, and other research tools and techniques.
615. **Design of Experiments (5).** Pr., PG 611.
Construction of theory and the formulation of empirical generalizations in terms of logical and statistical advantages and limitations in experimental design.
617. **The Psychology of Learning (5).**
A study of the problems and theories of learning with emphasis on individual differences.
620. **Advanced Experimental Psychology (5).** Lec. 2, Lab. 6.
Experimental investigation illustrating basic problems in the field of maturation, fatigue, reflex action, emotion, learning and social functions.
631. **Advanced Social Psychology (5).**
Evaluation of the various theories explaining social behavior. Consideration and performance of experiments in the field of attitude, prestige and suggestion, social climate, and propaganda.
634. **Advanced Mental Hygiene (5).**
Emotional satisfactions and adjustment mechanisms of children and adolescents. Behavior disorders and meliorative action for promoting favorable physical, intellectual, social, and emotional growth during formative years, including emphasis on complex personality factors.

- 637. Advanced Abnormal Psychology (5).**
Continuation of Psychology PG 435 with emphasis on case studies and the classification of abnormal groups. Field trips will be taken when possible.
- 651. Research Studies in Psychology (5).**
A problem using research techniques, the problem to be selected in consultation with the supervising professor. The problem should be one which will contribute to the program of the student.
- 654. Individual Testing (5). Lec. 3, Lab. 4. Pr., 20 hours in Psychology including PG 455.**
Theory and practice of measurement of intellectual performance in the individual. Students will be permitted to select either the Binet or Wechsler for practice, depending upon their interests.
- 655. Construction and Evaluation of Tests (5).**
Theory of test construction; construction of test items; item analysis; reliability; methods of test validation; the combining of tests into batteries.
- 656. Advanced Psychological Measurements (5). Pr., PG 415, or departmental approval.**
Nature, administration, and use of complex psychometric instruments in the areas of intelligence, performance, and personality.
- 671-2. Projective Theory and Techniques I & II (5-5). Pr., departmental approval.**
Intensive study of the foundation and theory of projective diagnosis in clinical psychology. Supervised practice in administering, scoring and interpreting projective tests; intensive case study work.
- 690. Seminar (1-5). (May be repeated for a total not to exceed 10 hours credit.)**
- 699. Research and Thesis. (Credit to be arranged.)**

Secondary Education (SED)

Head Professor Atkins

Professors Davis, Herndon, and Scheid

Associate Professors Justice, and Weaver

Assistant Professors Alley, Easterday, Ensminger, Graves, Miles, and Shell*

Instructors Creekmore, Curlington*, Freeman*, Ottis*, and Yielding**

Undergraduate

- 101. Orientation: Personal and Professional (3).**
Designed to help transfers from other curricula and students enrolled in other schools achieve optimum personal, social and intellectual development as college students and to assist them in understanding teaching as a profession. (Students sectioned by area of specialization.) (Credit in SED 101 excludes credit in SED 102-3-4.)
- 102-3-4. Orientation: Personal and Professional (1-1-1).**
(Students sectioned by area of specialization.) (Credit in SED 102-3-4 excludes credit in SED 101.)
(A) Art, (B) Business Education, (C) Dramatic Arts, (D) Foreign Languages, (F) Home Economics, (G) English Language Arts, (H) Mathematics, (J) Music, (K) Science, (L) Social Science, (M) Speech, (S) Undeclared Majors.
- 201. Education (2).**
Designed to help prospective teachers in the guidance of students. (A) Art Expression, (J) Music Experiences, (O) Exceptional Children, (P) Communication Problems, (Q) Materials of Instruction, (R) Improvement in Reading.
- 201L. Education (1). Lab. 2.**
Laboratory will be taken concurrently with the corresponding lecture course or independent of the lecture.

Curriculum and Teaching

Undergraduate students in secondary education with a teaching major and minor in secondary education only will take one course in Teaching and one course in Program in the major field and one course in either Teaching or Program in the minor field.

Students in secondary education may pursue a curriculum leading to certification for teaching in selected subject-matter fields in both the elementary and the secondary school. When this type program is pursued, certification requires that the student complete both the Teaching and the Program courses in the teaching field or fields in which certification is expected. Teaching fields for the twelve-grade program

*Temporary.

include health, physical education and recreation, industrial arts, and the subject-matter areas listed under Interdepartmental.

Teaching and Program courses may be scheduled and taught as separate courses, related courses, or as a unified program.

405. Teaching in Secondary School (3). Lec. 2, Lab. 2. Pr., 9 hours of Psychology, FED 200 or equivalent; Pr., or coreq., FED 300 or equivalent.
(B) Business Education (Fall); (D) Foreign Languages (Fall); (G) English Language Arts (Fall, Spring); (H) Mathematics (Fall); (K) Science (Fall); (L) Social Science (Fall, Winter, Spring).
407. Teaching Home Economics Education (5). Lec. 4, Lab. 2. Fall, Spring. Pr., 9 hours of Psychology, FED 200 or equivalent; Pr., or coreq., FED 300 or equivalent.
410. Program in Secondary School (3). Lec. 2, Lab. 2. Pr., 9 hours of Psychology, FED 200 or equivalent; Pr., or coreq., FED 300 or equivalent.
(B) Business Education (Spring); (D) Foreign Languages (to be arranged); (G) English Language Arts (Winter, Spring); (H) Mathematics (Spring); (K) Science (Spring); (L) Social Science (Fall, Winter, Spring).
412. Program in Home Economics Education (4). Lec. 3, Lab. 2. Fall, Spring. Pr., 9 hours of Psychology, FED 200 or equivalent; Pr., or coreq., FED 300 or equivalent.
425. Student Teaching in Secondary School (10 or 15). Fall, Winter, Spring. Pr., 9 hours of Psychology, FED 200 or equivalent; FED 300 or equivalent, two courses on Teaching and Program in the Secondary School, and senior standing.
(B) Business Education, (D) Foreign Languages, (F) Home Economics Education, (G) English Language Arts, (H) Mathematics, (K) Science, (L) Social Science.

Advanced Undergraduate and Graduate

475. Problems in Improvement of Reading at the Secondary School Level (5). Pr., teaching experience or consent of instructor.
Problem areas of effective reading instruction in developmental reading. Grades seven through twelve. Emphasis on techniques and materials for the teaching of comprehension, study skills, vocabulary, and other related areas in the reading program and in the content areas of the secondary school.
494. Organization of Instrumental Music (3). Pr., IED 414.
Theory and practice in the organization and administration of instrumental music in public schools.
495. Organization of Choral Music (3). Pr., IED 414.
Theory and practice in the organization and administration of choral music in public schools.

Graduate

646. Studies in Education (1-3). Pr., One quarter of graduate study.
A problem using research techniques, to be selected in consultation with the supervising professor. A problem should be selected which will contribute to the program of the student. (Credit in ED 651 prior to 1960 excludes credit in this course.)

Each of these courses, 651, 652, 653, and 654, applies to the following areas of the secondary school program: (B) Business Education, (D) Foreign Languages, (F) Home Economics Education, (G) English Language Arts, (H) Mathematics, (K) Science, and (L) Social Science.

651. Research Studies in Education in Areas of Specialization (5). Pr., 18 hours of appropriate subject matter and 36 hours of psychology and professional education.
Review, analysis, and interpretation of available research with emphasis on designing new research to meet the changing needs of the school.
652. Curriculum and Teaching in Areas of Specialization (5). Pr., 18 hours of appropriate subject matter and 36 hours of psychology and professional education.
Critical study of teaching practices and reappraisal of selecting experiences and content for curriculum improvement.
653. Organization of Program in Areas of Specialization (2-5). Pr., 18 hours of appropriate subject matter and 36 hours of psychology and professional education.
Advanced course. Program, organization and development of basic and supplementary materials for guiding teachers, faculties, and school systems in the continuous improvement of curriculum and teaching practices.

654. **Evaluation of Program in Areas of Specialization (2-5).** Pr., 18 hours of appropriate subject matter and 36 hours of psychology and professional education. Evaluation and investigation of teaching effectiveness with attention also given to the utilization of human and material resources and the coordination of areas of specialization with the total school program and with other educational programs of the community.

Study in other teaching areas including art; dramatic arts; gifted; mental retardation; music; speech; speech correction; health, physical education and recreation; and industrial arts is available also to students in secondary education.

- 659-660. **Practicum in Area of Specialization (5-5).** Pr., Master's Degree or equivalent in Education and permission of major professor.

The practicum provides advanced graduate students with supervised experience with emphasis on the application of concepts, principles, and skills acquired in previous course work.

Science

Undergraduate

453. **Science and Modern Living (5).** Lec. 4, Lab. 2. Pr., junior standing. Interpretative course stressing the relationship of science to problems of personal and social living in modern technological society. The critical role of science in democracy.
473. **General Science for Teachers (5).** Lec. 4, Lab. 2. Pr., junior standing. Gives the teacher essential knowledge of such fields as earth science, meteorology, astronomy, nuclear energy, which constitute significant aspects of the general science program.

Graduate

- 640-641. **Advanced Study of High School General Science.** Pr., SED 473. Intensive study of selected topics from the area of the high school general science program.

For advanced courses in curriculum, school library science, higher education, and research and dissertation, see IED.

699. **Thesis Research.** (Credit to be arranged.) (May be taken more than one quarter.)

Secretarial Administration (SA)

Associate Professor Lamar

Assistant Professors Brown, and F. Hale

Instructors Bond, B. Andress, and M. Street**

101. **Secretarial Science I (5).** Lec. and Lab. 10. First of a series of four courses. Student develops the ability to prepare mailable copy and begins the study of typewriting and Gregg system of shorthand. One hour per day is devoted to each with emphasis on the development of correct techniques in both skills. (Not open to students who have not had the equivalent of one unit of H.S. typing. Such students without typing should first take SA 111.)
102. **Secretarial Science II (5).** Lec. and Lab. 10. Pr., SA 101. Continuation of SA 101.
111. **Business Typewriting (5).** Lab. 10. Not open to those with credit in SA 113 or who have one high school unit in typing. For beginners, deals with elements of typewriting to gain facility in the preparation of letters and reports, typing from rough draft, tabulations, the cutting of stencils, and general typing.
113. **Personal Typewriting (3).** General elective. Lab. 6. Not open to those with credit in SA 111 or who have one high school unit in typing. For student who wishes to learn typewriting for personal use. Emphasis on touch control of keyboard, centering, appropriate styles for letters, and the preparation of reports. More time spent on the application of fundamentals than on speed.
203. **Secretarial Science III (5).** Lec. and Lab. 10. Pr., SA 102. Emphasis on developing production rate on jobs approximating those of a business office. Review of shorthand theory, building shorthand writing speed, and laying a foundation on which to build transcription skill.
204. **Secretarial Science IV (5).** Lec. and Lab. 10. Pr., SA 203. Development of transcription ability through the fusion of skills in typewriting, reading shorthand, spelling, grammar, handling supplies, etc. Continuation of shorthand review and dictation speed.
301. **Dictation (5).** Pr., SA 204 and junior standing. Increased rate of dictation to 120 words per minute and further development of transcription speed.

* Temporary.

305. Filing (3). Pr., junior standing.
400. Office Machines (5). Lab. 10. Pr., EC 211 or equivalent, and the ability to type at a reasonable speed.
Course designed to give the student a working knowledge of various machines found in modern offices. Basic training in use of voice-writing, duplicating, adding, calculating, and posting machines.
401. Dictation (5). Pr., SA 301 and junior standing.
More difficult and technical dictation and transcription organized around several types of vocations.
402. Office Apprenticeship (5). Lab. 10. Pr., SA 301 and SA 403 and junior standing.
Practical secretarial training. Student spends two hours each day working in an office to which he is assigned for actual office experience.
403. Secretarial Procedure (5). Pr., SA 204 and junior standing.
Analysis of the secretarial profession stressing importance of personal factors, the responsibilities of the secretary, and the study of specialized duties. Related work assignments give practice in typical secretarial activities.
404. Advanced Secretarial Procedure (5). Pr., SA 403.
More advanced study of secretarial and office practices with emphasis upon supervision and administration.

Sociology (SY)

Professor Hartwig

*Associate Professor Shields***

Instructors Carson, French, and McDaniel**

201. Introduction to Sociology (5). Pr., sophomore standing and qualified third quarter freshman with departmental approval.
Principles and processes influencing the social life of man.
202. Social Problems (5). Pr., SY 201.
Current social problems with special reference to the socially inadequate.
203. Cultural Anthropology (5). Pr., sophomore standing.
Nature of culture, using materials taken from scientific studies of societies.
204. Social Behavior (5). Pr., SY 201 or PG 211.
Integrated social-anthropological, biological and psychological factors which influence or determine human behavior; the emphasis is upon the normal average individual and/or group situations.
205. Preparation for Marriage (3). General elective. Open to freshmen with consent of instructor.
Basic factors in dating courtship, mate selection and engagement in preparation for marriage and family living.
207. Introductory Archaeology (5). Pr., SY 201 or SY 203.
Survey of the history, principles, and methods for investigating and reconstructing past cultures.
301. Sociology of the Family (5). Pr., SY 201 and junior standing.
The family in contemporary society.
302. Criminology (5). Pr., SY 201 and junior standing.
The causes of crime and its social treatment. Field trips required.
303. History of Anthropology (5). Pr., SY 203.
The development of anthropological thought from functionalism and evolutionism to culture and personality research and whole-culture analysis.
304. Minority Groups (5). Pr., junior standing.
Racial composition of the United States with special emphasis upon the adjustment of minority groups to the culture.
305. Culture and Personality (3). Pr., SY 201.
Socio-cultural factors in personality development and recent studies in national character.
306. Penology (5). Pr., junior standing and SY 302.
The history and development of corrections with particular emphasis upon modern rehabilitative processes.
308. Juvenile Delinquency (5). Pr., SY 201.
Survey of historical and contemporary considerations relative to the juvenile offender. The emphasis is upon research data from the various sciences attempting to deal with this problem.

*Temporary.

** On leave.

309. **Social Thought (5).** Pr., junior standing and SY 201 or consent of instructor.
Survey of significant social thought leading to the emergence of modern sociological theory.
310. **Social Organization (5).** Alternate years. Pr., SY 201 or consent of instructor.
Structure and stratification of society with particular attention given to the contemporary scene.
311. **Technology and Social Change (3).** General elective. Pr., junior standing.
Relationship between technological development and changes in modern society. Special emphasis placed upon the human relations aspects of modern science. Designed primarily to meet social science needs of students in the fields of engineering, agriculture, education, and the physical sciences.
312. **Marriage Adjustments (3).** General elective. Pr., junior standing.
Survey of emotional, social and biological factors in the family setting with emphasis upon adjustments of marriage and parenthood.
401. **Population Problems (5).** Pr., senior standing.
Problems of quantity and quality of population including problems of composition, distribution and migration. Attention is given to Alabama population.
402. **Social Theory (5).** Pr., SY 201 or consent of instructor; senior or graduate standing.
Survey of the range of contemporary social theory.
403. **Contemporary Anthropology (5).** Pr., SY 203, junior standing.
A survey of contemporary primitive, traditional and urban cultures, and recent research in culture change.
404. **Sociology of Power (5).** Pr., SY 201, junior standing.
A systematic concern with the dimensions and distribution of power in social life.
405. **Urban Sociology (5).** Pr., senior standing.
Growth and decline of cities with special emphasis on ecological and demographic characteristics, associations and institutions, class systems, and housing and city planning.
406. **Introduction to Social Welfare (5).** Pr., senior standing.
Survey of the social welfare field, including social case work. Primarily for students planning a career in the social welfare or related fields.
407. **Public Opinion and Propaganda (5).** Pr., junior standing, SY 201.
Survey in the area of social communication; the formation, place and importance of publics in modern society, of public opinion research, and of propaganda and public relations techniques.
408. **Industrial Sociology (5).** Pr., junior standing, SY 201.
Introductory survey of the sociological approach to business organization and industrial relations. Emphasis given to organization principles operative in the economic life within a social system such as a factory or business establishment.
409. **Sociology of Religion (5).** Pr., SY 201, senior standing, or consent of instructor.
Analysis of religion as a social institution as found in the world's great religions. (To be offered in alternate years.)
410. **Sociology of Knowledge (5).** Pr., SY 201 or consent of instructor.
A review of sociological approaches to the understanding of human knowledge; a tracing of connections between knowledge and other facets of the sociocultural context.
414. **Field Instruction (5).** Pr., junior standing and consent of instructor.
Supplementary instruction concurrent with field experience in some field of work involving application of sociological perspectives to community life.

GRADUATE COURSES

602. **Seminar in the Family (5).** Pr., SY 301 or HE 304 or consent of instructor.
Advanced study of the institutional nature of marriage and the family with particular emphasis upon the changing practices and notions in marital relationships as related to changes in the structure and functions of the family.
603. **Social Problems (5).** Pr., SY 202 and consent of instructor.
Special social problems such as old age, crime and delinquency, minorities, etc., within the framework of social problem theory.
604. **Seminar in Race and Culture (5).** Pr., SY 201 and SY 304 or consent of instructor.
Adjustment of races to culture with particular reference to the South; the historical and cultural background of the races in America; bi-racial system; problems of race relations.
650. **Sociology Seminar.** Not to exceed 10 hrs. Pr., graduate standing or consent of instructor.
Designed for students engaged in intensive study and analysis of sociological subject areas.

NOTE: All 400 (except SY 406) and 600 level courses are available for a graduate minor in Sociology.

Speech (SP)*Head Professor Davis**Professors Ranney, and Smith**Associate Professor Hutchinson**Assistant Professors Gray, Green, Flannery, Moore, Richardson, and Sanders**Instructors Henderson, Horton, Lopiccio, Morrow, Phillips, and Vickrey***a. Fundamentals**

101. **Listening Improvement (1).** Lec. 1, Lab. 1.
Developmental listening for students who wish to improve their skill in this area.
200. **Survey of the Bases of Speech (5).**
Acquaints the prospective speech major or minor with the fundamentals of speech, the historical, psychological, sociological and other bases.
201. **Introduction to Oral Communication (5).**
The nature, purposes, and process of oral communication. Theories of language, goals of various forms of oral communication are considered. Deviations from normal speech and special problems in communication are explored.
300. **The Speech and Hearing Mechanism (5).**
Anatomy and physiology of the speech and hearing mechanism.
301. **Phonetics (3).** Lec. 2, Lab. 2.
Principles of phonetics and their application to speech.
401. **Psychology of Communication (5).** Pr., junior standing, PG 211 or 213 and PG 330.
Speech as a psychological phenomenon with consideration of language development, symbolism, verbal learning. Small groups and audience behavior and psychological studies in various areas of communication situations.
601. **Introduction to Graduate Study in Speech (5).**
Nature and methods in graduate study in speech; exploration of areas in which research is needed; resources available; methods of research in speech; structuring the research problem; presenting the results of research in speech.
607. **Independent Study (1-5).** (Course may be repeated not to exceed 10 hours credit.)
A. Public Address; B. Interpretation; C. Radio and Television; D. Group Methods; E. Speech Pathology; F. Audiology. Conferences, readings, research, and reports in one of the listed areas.
699. **Thesis (Credit to be arranged).**

b. Public Address

210. **Public Speaking (3).** All quarters. General elective.
Aids the student in preparing and delivering effective public speeches extemporaneously. Emphasis on narrative, expository, argumentative and motivational speeches. (Credit in this course excludes credit in SP 211.)
211. **Essentials of Public Speaking (5).** All quarters.
Theory and practice of effective public speaking involving content, organization, language, voice and bodily action. Instruction in method of preparing and delivering of extemporaneous speeches and in the various means of making ideas effective. A special section offered for foreign students. (Credit in this course excludes credit in SP 210.)
310. **Great American Speeches (3).** All quarters. General elective.
Critical study and comparison of representative outstanding American speeches; the issues with which they were identified; their relation to the social scene.
311. **Advanced Public Speaking (5).** Pr., SP 211 or 210, or by consent of instructor.
Structure, style, and delivery of various types of speeches for different occasions, speeches to inform, to persuade, and to entertain. Theory and study of current examples combined with practice.
411. **Persuasive Speaking (5).** Pr., junior standing and SP 211 or 210 or consent of instructor.
Influencing individuals and audiences by means of spoken appeals. Salesmanship speaking. Analysis of forces which lead to belief and action. Practice in organizing and presenting such appeals.
- 610-11. **History and Development of Rhetorical Theory I, II (5-5).** Pr., consent of instructor.
Advanced studies in the historical development of writings, men and movements. Materials selected from the periods: A. Ancient and Medieval; B. Renaissance and Modern.

615. **Rhetorical Criticism (5).** Pr., consent of instructor.
The history and method of rhetorical criticism. Application of critical standards to selected men and their work.

c. Interpretation

220. **Fundamentals of Oral Interpretation of Literature (5).** All quarters.
Students are trained in the oral performance of literature. Oral readings of prose, poetry and drama, enhancing the student's understanding and appreciation of the art of literature by engaging him actively in reading the literary text aloud.
421. **Oral Interpretation of Prose and Drama (5).** Pr., junior standing and SP 220 or consent of instructor.
Develops skill in the oral reading of prose and drama. Study of theories concerning the sound, sense and performance of these two types of literature.
422. **Oral Interpretation of Poetry (5).** Pr., junior standing and SP 220 or consent of instructor.
Develops skill in the oral reading of poetry. Theories concerning problems in reading verse, criticism and performance; modes of group performance are included.
620. **The History and Theory of Interpretation (5).**
Studies in the growth and change of theories regarding oral interpretation.

d. Television-Radio-Film

230. **Introduction to Broadcasting (5).** Pr., SP 211 or 210 or consent of instructor.
The history, growth and development of broadcast communications and the legal, social and political aspects of broadcasting.
232. **Broadcast Instrumentation (3).**
Basic principles in the reproduction of sound and pictures, familiarization with the electronic characteristics of basic equipment in television, radio and film.
234. **Broadcast Production Techniques—Radio (5).** Pr., SP 232 or permission.
Analysis of the creative efforts and responsibilities in the primary stages of broadcast production. Practice in writing, producing, directing, performing and crewing radio productions and taped material.
235. **Modes of Film Communication (5).**
The film industry's contribution to television and other forms of mass communication; an analysis of the styles and forms of film production as entertainment, communication, education and art.
236. **Broadcast Production Techniques—Television (5).** Pr., SP 232 or permission.
Practice in writing, producing, directing, performing and crewing television productions and video-tape materials.
238. **Broadcast Speech (3).** Pr., SP 210 or 211 or permission.
Introduction to the responsibilities and skills required of the individual performer in the preparation, announcing and narration of various types of non-dramatic material for television and radio.
334. **Advanced Radio Broadcasting (5).** Pr., junior standing and SP 234 or consent of instructor.
Continuation of SP 234. Advanced course in announcing techniques, program organization, audience analysis, recording, sound effects, directing.
335. **Development of the Film (5).** Pr., 235 or permission.
The role of film, its history, contributions and effectiveness as an area of expression and communication; an analysis of the social, artistic, economic and cultural factors which have influenced the film.
336. **Television Production-Direction I (5).** Pr., SP 236 or permission.
Individual and group projects in the development and production of programs and formats; an intense study of directing theory and the director's role through presentation of educational and dramatic materials.
338. **Broadcast News Writing (5).** Pr., junior standing and permission.
Writing and editing news and informational material for television and radio. Students solicit and prepare news from and for local sources.
436. **Television Production—Direction II (5).** Pr., junior standing and SP 336.
Individual and group projects in the creation of program material with special emphasis on the writer-producer and his role in the industry.
438. **Television—Radio—Film Writing (5).** Pr., junior standing and permission.
The technique of writing dramatic and non-dramatic material for television, radio and films. Special emphasis is placed on performance. Students may elect to emphasize one area.

439. **Broadcasting in Education (5).** Pr., junior standing.
The uses, problems, potentialities and current developments in educational broadcasting with special emphasis on instructional and educational television.
630. **Studies in Radio, Television and Film (5).** Pr., consent of instructor.
Combined media and their relationship with speech and communication.
631. **History of American Broadcasting (5).** Pr., consent of instructor.
The origin of radio and television broadcasting and its development to the present day.
632. **Broadcast Programming and Criticism (5).** Pr., consent of instructor.
The theory and practice of programming, its problems and concepts, coupled with an analysis of the criticism leveled at the process and the product.
633. **Broadcast Regulations (5).**
The social and political control of broadcasting by agencies, groups, and organizations through legal, social and economic means.

e. Speech Correction and Audiology

(Speech Correction)

450. **Speech Improvement (5 hr. Lab.—non-credit).** May be repeated.
Encourages the individual development and use of an acceptable pattern of speech with special attention to intelligibility, pronunciation, intensity, sound discrimination, voice quality and the objective attitude.
355. **Clinical Procedures in Speech (1-3).** Course may be repeated.
Orientation and an introduction to supervised clinical activity in the area of speech disorders. Clinical practice required.
450. **Principles of Speech Correction (5).** Pr., junior standing.
Not open to students emphasizing or majoring in speech correction and audiology. Basic principles underlying a speech correction program in a school setting. Description and discussion of speech disorders; surveys and identification techniques.
451. **Speech Correction I (5).** Pr., SP 300 and 301. For Speech Majors.
The nature of the speech correction process with emphasis on disorders of articulation. Participation in clinic activities required.
452. **Speech Correction II (5).** Pr., SP 451 or consent of instructor.
Continuation of SP 451 with emphasis on vocal disorders and disorders of rhythm. Participation in clinic activities required.
453. **Speech Correction III (5).** Pr., junior standing and SP 452 or consent of instructor.
Emphasis on disorders of symbolization and delayed language development. Participation in clinic activities required.
650. **Speech Pathology (5).** Pr., SP 453 or consent of instructor. May be repeated not to exceed 15 hours credit.
Advanced studies dealing with disorders of speech. Materials may be drawn from: A. cerebral disturbances (aphasia and cerebral palsy); B. palatolaryngeal disturbances (esophageal and cleft palate); C. voice disorders; D. stuttering; E. articulation (including dialect); F. delayed speech development.
655. **Clinical Problems in Speech (1-3).** Pr., SP 453 or equivalent. The course may be repeated.
Methods, techniques, and clinical management of the disorders of speech. Clinical practice required.

(Audiology)

361. **Hearing Tests and Instruments (5).**
Theory and practice of individual and group hearing tests; audiometric instruments; clinical practice.
362. **Speech Reading (5).**
Description and discussion of the major speech reading (lip reading) principles and theories; analysis of the patterns of instruction of children and adults; clinical practice.
365. **Clinical Procedures in Hearing (1-3).**
Orientation and an introduction to supervised clinical activity in the area of hearing disorders. Clinical practice required.
460. **Introduction to Problems in Hearing (5).** Pr., junior standing.
Principles of auditory reception, the hearing mechanism and the problems involved in measuring, evaluating, and conserving hearing. Clinical observation.

461. **Hearing Pathology (5).** Pr., SP 460 or equivalent.
Evaluation and rehabilitation of aural handicapped children and adults; hearing aids and auditory training. Clinical practice.
660. **Audiology (5).** Pr., SP 460 or consent of instructor. May be repeated not to exceed 15 hours credit.
Advanced studies dealing with the disorders of hearing. Materials drawn from: A. speech reading; B. auditory training; C. hearing testing and measurement; D. child and adult rehabilitation; E. hearing aids and hearing aid evaluation; F. education of the deaf.
665. **Clinical Problems in Hearing (1-3).** Pr., SP 460, 461, or equivalent. The course may be repeated.
Methods, techniques, and clinical management of the disorders of hearing. Clinical practice required.

f. Group Methods

270. **Group Leadership (3).** All quarters. General elective.
Nature and functions of group leadership; the role of democratic leadership in organizing and conducting a group meeting to reach group aims. Students gain leadership experience in class activities to help them learn and perfect democratic leadership techniques.
273. **Group Problem-Solving Through Discussion (5).** All quarters.
Theory and practice in group problem solving through discussion. The values and limitations of discussion, the prerequisites of reaching agreement and a systematic approach to solving problems in group discussion. Leadership in problem solving.
275. **Debate Workshop (1).** May be repeated for a maximum of 3 credit hours.
Introduction to the national debate question for beginning debaters interested in competition debate. Lecture and practical work.
278. **Argumentation and Debate (5).**
A study of debating techniques and procedures; their application to issues of current public interest; the gathering, organization, and presentation of facts, proofs, evidence.
371. **Parliamentary Procedure (3).** All quarters. General elective.
To aid the individual who may lead or participate in discussions or organizations where orderly procedure is needed. Theory and practice both employed.
375. **Debate Workshop (1).** May be repeated for a maximum of 3 credit hours.
Advanced study of the national debate question for experienced debaters. Analysis of logical, ethical and emotional proofs in competition debate. Lecture and practical work.
473. **Advanced Discussion (5).** Pr., junior standing and SP 273 or consent of instructor.
Study and practice in the theory and organization of problem-solving discussion and conference groups. Primarily for persons who work with groups.
478. **Advanced Argumentation and Debate (5).** Pr., junior standing and SP 278 or consent of instructor.
Function of argumentation and debate in a democracy and its application of principles of logic and evidence in past and present public speaking and debating.
673. **Seminar in Discussion (5).** Pr., SP 273 or equivalent.
Group problem solving through discussion. Includes the survey of published experimental work in discussion and considers the values and limitations of discussion as tools of the democratic leader. Special attention is paid the application of group problem-solving in education, business, industry and agriculture.
678. **Seminar in Debate (1-5).** (May be repeated not to exceed 5 hours credit.)
Psychological concepts of argument. Techniques and methods employed in argumentative discourse. Critical analysis of selected controversies and a survey of published experimental work in debate.

Textile Engineering (TE)

*Head Professor Adams
Professors Knight, and Waters
Associate Professors Farrow, and Hall
Assistant Professor Phillips*

101. **Introduction To Textiles (1).**
Orientation course for freshmen which briefly introduces all branches of the textile industry.
210. **Fiber Processing (5).** Lec. 4, Lab. 3.
Construction and operation of equipment for opening, cleaning, blending, picking, carding, combing, drawing; adaptation of these processes to synthetics and wool; calculations necessary for the planning and operation of this equipment.

211. **Yarn Manufacture I (5).** Lec. 4, Lab. 3.
Construction and operation of roving and spinning equipment for cotton, wool, and synthetics; long draft systems and special drafting, systems for blends, etc.
220. **Weaving and Designing I (5).** Lec. 4, Lab. 3.
Automatic cam loom mechanism with designing of fabrics made on these looms.
305. **Fiber Technology (3).** Lec. 2, Lab. 3. Pr., sophomore standing.
Origin, characteristics, and properties of the various textile fibers, both natural and man-made; fiber microscopy.
307. **Bleaching and Dyeing (5).** Lec. 4, Lab. 3.
Bleaching, dyeing and finishing of natural and man-made fiber fabrics; all types of dyes for textiles, their application and fastness.
317. **Dyeing and Finishing (5).** Lec. 4, Lab. 3. Pr., TE 307.
Plant application methods and plant problems in dyeing, finishing and printing of natural and man-made fibers.
319. **Chemical Testing (2).** Lec. 1, Lab. 3. Pr., junior standing.
Procedures and laboratory work on all types of textile tests of a chemical nature; analysis of textile chemicals.
320. **Weaving and Designing II (5).** Lec. 4, Lab. 3. Pr., TE 220.
Dobby and multibox operation, pattern planning, and designs applicable to dobbie and box looms.
321. **Weaving and Designing III (5).** Lec. 4, Lab. 3. Pr., TE 320.
Special weaving attachments, and production of specialty fabrics. Weaving mill organization. Fabric identification.
322. **Yarn Manufacture II (5).** Lec. 4, Lab. 3. Pr., TE 210 and TE 211.
Methods of obtaining higher quality yarns; yarn production planning; practical manufacturing problems; yarn mill machinery layout and labor organization.
324. **Physical Testing (3).** Lec. 2, Lab. 3. Pr., junior standing.
Testing procedures, laboratory use of textile testing equipment and interpretation of data.
325. **Textile Quality Control (2).** Pr., TE 210, TE 211, EC 245; Coreq. TE 324.
A practical system of textile quality control.
401. **Engineering Aspects of Textile Materials and Processes (5).** Lec. 4, Lab. 3. Pr., senior standing.
A comprehensive study of textile fibers and processes emphasizing the basic engineering elements of each.
405. **Warp Preparation (5).** Lec. 4, Lab. 3. Pr., junior standing.
Preparation of warp yarn for weaving.
406. **Textile Costing (5).** Pr., junior standing.
Basic principles for figuring textile production costs; allocation of costs; fabric cost sheet; marketing costs.
412. **Textile Management (3).** Pr., junior standing.
Analysis of management problems in textile industry including policy determination, job analysis, work loads, training, organization, plant layout, etc.
417. **Advanced Dyeing (5).** Lec. 4, Lab. 3. Pr., TE 317.
Study of dyestuff manufacture, shade matching and instrumentation.
418. **Jacquard Weaving and Design (2).** Lec. 1, Lab. 3. Pr., TE 220 and junior standing.
Jacquard mechanism and design of original patterns for jacquard loom.
424. **Man-Made Fibers I (5).** Pr., junior standing.
Manufacturing and processing.
425. **Man-Made Fibers II (5).** Pr., TE 422.
Technological aspects, usage, considerations in the employment of man-made and natural fibers and blends.
431. **Fabric Analysis (3).** Lec. 2, Lab. 3. Pr., TE 320.
Analysis of fabric structure and determination of specifications.

Vocational, Technical, and Practical Arts Education (VED)

*Head Professor Montgomery
Associate Professors Bottoms, and Pruett
Assistant Professors Baker, Dawson, and Selman*

Undergraduate**102-3-4. Orientation: Personal and Professional (1-1-1).**

Helps freshmen achieve optimum personal, social, and intellectual development as college students. Assists in planning professional careers. (Students sectioned by area of specialization.)

246. Instructional Drawing (3). Lab. 6.

Preparing for the shop laboratory, including making freehand and pictorial sketches and drawings, reading working drawings, blue prints, manufacturers guides, and lettering, use of instruments, dimensioning, making models, floor plans, bills for materials, writing specifications, and developing working plans.

346. Vocational and Practical Arts Education (3).

Ways of studying occupational needs and developing and operating local program of vocational and practical arts education.

400. Introduction to Power Mechanics (5). Lec. 2, Lab. 6.

Design and operational theories related to power machines. Internal combustion engines; power trains; hydraulic and cooling systems.

401. Practicum in Small Gasoline Engines (5). Lec. 2, Lab. 6.

Application of skills and abilities needed in teaching the maintenance and repair of small air cooled engines. Theories of compression, carburetion and ignition; laboratory exercises in repair and maintenance.

402. Automotive Construction and Repair (5). Lec. 2, Lab. 6.

Theories of design, principles of operation, and maintenance and repair of ignition system, fuel systems, power systems and chassis components.

404. Practicum in General Metals (5). Lec. 2, Lab. 6.

Application of skills and abilities needed in the teaching of metal processes applicable to vocational education program in the secondary school. Metal properties; power tools; heat treating; ornamental iron work, cold metal; sheet metal; machining metals; and arc and gas welding.

405. The School Shop (3).

Organization and management of the school shop; methods and materials integrated with the study of jobs and problems basic to the teaching of skills in vocational education.

406. Practicum in Building Construction and Maintenance (5). Lec. 2, Lab. 6.

Application of skills and abilities needed in teaching the erections of buildings and other related structures. Bills of materials; hand and machine woodworking; structural carpentry; plumbing; design and installation of residence wiring; heating and cooling concrete and masonry construction; painting and other related information. (a) Agricultural education majors and (b) Basic vocational education majors.

407. Practicum in Electricity (5). Lec. 2, Lab. 6.

Application of skills and abilities needed in the teaching of fundamental principles of electricity. Planning and developing projects involving an understanding of electrical principles as applied to materials selection, circuits, motors and devices; and maintenance and servicing of electrical equipment and appliances.

409. Teaching Electronics in Industrial Arts (5). Lec. 2, Lab. 6. Pr., departmental approval.

Theories and practices used in school electronic laboratories; projects designed and constructed.

410. Occupational Information (3). Lec. 2, Lab. 2. Pr., 9 hours Psychology, FED 200 or equivalent, FED 300, Pr. or coreq.

Occupational structure, job qualifications and requirements, sources of occupational information, current trends, industrial and occupational surveys. Preparation, evaluation, and dissemination of occupational information used by teachers in vocational and technical schools.

414. Program and Teaching (5). Lec. 4, Lab. 2. Pr., 9 hours Psychology, FED 200 or equivalent and FED 300, Pr., or coreq.

(a) Agricultural Education, (b) Distributive Education, (c) Industrial Arts (Elementary and Secondary), (d) Trade and Industrial Education, and (e) Technical Education.

423. Program in Basic Vocational Education (3). Lec. 2, Lab. 2. Pr., 9 hours Psychology, FED 200 or equivalent, Pr., coreq., FED 300 or equivalent.

(a) Agriculture, (b) Building Construction, (c) Distributive Business, (d) Metals Technology and (e) Power Mechanics.

Undergraduate students with a major in industrial arts will pursue a minor selected from some other teaching area in the secondary school program or in one of the areas included in the twelve-grade program. (For appropriate course or courses in Teaching or Program, see SED, IED, and PE.)

425. Student Teaching (10 or 15). Lec. 5, Lab. 20. Pr., 9 hours of Psychology, FED 200 or equivalent; FED 300 or equivalent, two courses in Teaching and Program, and junior or senior standing.
(A) Industrial Arts in Elementary and Secondary Schools, (B) Agricultural Education.
456. Learning Resources (3). Lec. 2, Lab. 2. Pr., VED 414.
(a) Agricultural Education, (b) Distributive Education, (c) Industrial Arts (Elementary and Secondary), (d) Trade and Industrial Education, and (e) Technical Education.
458. Coordination and Supervision of Vocational Education Programs (3). Lec. 2, Lab. 2. Pr., VED 414.
Develops and maintains appropriate relationship between the school and on-the-job program; records of coordination; student placement; improving employable skills and habits; recruitment and selection of work experience applicants; work experience rotation; public information and other similar activities.
462. Directed Work Experience in Distributive Education (5). Lab. 10. Pr., VED 414.
In-service, supervised work experience. Individually designed for part-time and/or summer experience.
466. Teaching Out-of-School Groups (3). Pr., VED 414.
Conducting surveys, occupational analysis, using advisory committees, organizing, conducting and supervising various types of adult education.
476. Organization of Instruction in Trade and Industrial Education (5).
Trade and occupational analysis; principles and procedures of identifying and selecting the skills and knowledge needed in the preparation of courses of instruction. Principles and procedures for individualizing instruction.

Advanced Undergraduate and Graduate*

408. Teaching Mechanical Technology (5).
Objectives and methods; equipment and management of vocational education shops; organization of projects; recent developments in specialized areas of mechanics; in-service teaching problems. Student plans for demonstration of methods for teaching mechanical skills.
430. Evaluation and Training in Vocational Rehabilitation (4). Lec. 3 hours daily for 6 weeks, internship 4 weeks. Pr., departmental approval and junior standing.
Purposes, principles and techniques of client evaluation and training; including personal, social and physical adjustment, vocational choice and selected techniques used in the evaluation and training process.
431. Research in Evaluation and Training in Vocational Rehabilitation (4). Lec. 3 hours daily for 6 weeks, internship 4 weeks. Pr., departmental approval and junior standing.
Study of a problem using research techniques, to be selected in consultation with the supervising professor.
432. The Instructional Program in Workshop and Rehabilitation Facilities (3). Lec. 3 hours daily for 4 week, internship 6 weeks. Pr., departmental approval and junior standing.
Includes program development, teaching, learning resources, evaluation, project development and production, and supervision.
433. Management of Vocational Rehabilitation Workshops and Facilities (3). Lec. 3 hours daily for 4 weeks, internship 6 weeks. Pr., departmental approval and junior standing.
The function of organization and administration including: federal, state, and local roles, financial support, community interaction, personnel management, and operation of facilities.

* Offered only to participants in training programs for workshop and facility personnel in State and Regional offices of Vocational Rehabilitation.

485. Audio-Visual Materials (5). Lec. 4, Lab. 2. Pr., junior standing.

Examination and evaluation of films, filmstrips, slides, exhibits, charts, maps, globes, recordings, radio, educational television and programmed materials. Attention given to contributions of audio-visual materials to the elementary and secondary school curriculum, to sources of audio-visual materials, and to operation, care and housing of necessary equipment.

Graduate**602. Teacher Education in Vocational and Practical Arts (5). Pr., departmental approval.**

Designed for supervisors of student teachers, teacher educators, and other graduate students. Major emphases deal with administration of vocational education programs, research, problems which supervising teachers encounter in the student teaching program.

603. Problems in Agricultural Occupations (5). Pr., departmental approval.

Securing, organizing and interpreting information for guidance and teaching purposes; curriculum development; developing instruction units and planning teaching activities for on-farm and off-farm occupations.

604. Organization and Administration of Adult Education (5). Pr., departmental approval.

History, philosophy, and needs for adult education; nature of adult learning; procedures in organizing adult groups; and administration of adult education programs.

606. Programs, Materials and Methods in Adult Education (5). Pr., departmental approval.

Analysis of programs in adult education including public school general adult education, adult farmer education programs conducted by various agencies, and adult programs in community colleges and trades schools; materials and methods appropriate in teaching various age groups.

607. Seminar in Research in Agricultural Education (4).

Review and criticism of contributions of research in agricultural education; using research in solving current problems; needs for additional research; planning of a comprehensive study or completion of a small study.

608. Administration of Vocational and Practical Arts Education (5). Pr., departmental approval.

Designed to prepare junior college personnel, public school administrators, counselors and teachers for relating current social demands to vocational, technical and practical arts programs in schools. Content includes philosophy, procedures in organization and administration, and changing socio-economic conditions requiring constant adjustments of programs.

609. Selection, Creation and Use of Audio-Visual Materials (5). Lec. 3, Lab. 4. Pr., VED 485 or consent of instructor.

Selection and use of various materials for specific educational purposes and the production of materials as learning experiences.

646. Studies in Education (1-3). Pr., one quarter of graduate study.

Study of a problem using research techniques, to be selected in consultation with the supervising professor. A problem should be selected which will contribute to the program of the student. (Credit in ED 651 prior to 1960 excludes credit in this course.)

651. Research Studies in Vocational, Technical and Practical Arts Education (5).

Review, analysis, and interpretation of available research with emphasis on designing new research to meet the changing needs of the elementary, secondary and post-high school programs.

652. Curriculum and Teaching in Vocational, Technical and Practical Arts Education (5).

Critical study of teaching practices and reappraisal of selecting experiences and content for curriculum improvement in the elementary, secondary and post-high school programs.

654. Evaluation of Programs in Vocational, Technical and Practical Arts Education (2-5).

Evaluation and investigation of teaching effectiveness with attention also given to the utilization of human and material resources and the coordination of areas of specialization within the elementary, secondary, and post-high school programs.

659-660. Practicum in Area of Specialization (5-5). Pr., Master's Degree or equivalent, and permission of major professor.

Provides advanced graduate students with supervised experience with emphasis on the application of concepts, principles, and skills acquired in previous course work.

699. Thesis Research. (Credit to be arranged.) (May be taken more than one quarter.)

Veterinary Medicine (VM)**Anatomy and Histology**

Head Professor Fitzgerald
Professor Whiteford
Associate Professor James
*Assistant Professor Holloway***
Instructors Stott, and Reynolds
Technician Dennis

Microbiology

Head Professor Neal
Associate Professor Attleberger, and Cody
*Assistant Professors Miller***, and Wilt*
Instructors Moore, Pritchard, and Spaulding
Technicians Summers and Carroll

Pathology and Parasitology

Head Professor Groth
Professor Roberts
Research Professor Bailey
Research Associate McCue
Associate Professor Hoff
*Assistant Professors Diamond, Teer***, and Shields*
Instructor Gosser
Technicians Davidson, McConnell, and Doerr

Physiology and Pharmacology

Head Professor Clark
Professors Burns, and Woodley
Associate Professors Alexander, Farnell, and Beckett
Assistant Professors Robertson, and Botta
Instructor Branch
Technician Meadows
Graduate Assistant Self

Large Animal Surgery and Medicine

Head Professor Schell
Professors Gibbons, Wiggins, and Walker
Associate Professors Winkler, Vaughan, Newman, and Witherspoon
Intern Lindholm
Technician Johnston

Small Animal Surgery and Medicine

Head Professor Hoerlein
Professor Heath
Associate Professor Horne
Assistant Professors Anderson, and Albert
Instructor Dorn
Research Assistant Gage
Technicians Jeffrey, Johnston, and Graham

200. General Microbiology (5). Lec. 3, Lab. 4. Fall, Winter, Spring. Pr., General and Organic Chemistry.

Fundamentals of microbiology including history of microbiology, morphology, metabolism, classification, identification, cultivation, and distribution of bacteria, viruses, yeasts, and molds; also an introduction to applied microbiology.

**On leave.

- 204. Pathogenic Microbiology (5).** Lec. 3, Lab. 4. Summer, Fall, Spring. Pr., General Microbiology.
Microorganisms pathogenic to man and animals. Immunity to, and laboratory diagnosis of, diseases caused by microorganisms.
- 210. Human Physiology (5).** Lec. 3, Lab. 4. All quarters.
Functions and manner of operation of the body and its parts, with special emphasis on digestion, circulation and reproduction. Laboratory exercises illustrate the functions of the various organ systems of the body.
- 220. Human Anatomy and Physiology (5).** Lec. 3, Lab. 4. Summer, Fall and Winter. Pr., ZY 102.
For students in Laboratory Technology and others who are qualified. Human skeletal, muscular and nervous systems. Human models, cats and frogs are used in laboratory to supplement lecture material.
- 221. Human Anatomy and Physiology (5).** Lec. 3, Lab. 4. Winter and Spring. Pr., ZY 102 and VM 220.
Continuation of VM 220. Those aspects of anatomy and physiology that are related to the heart, circulation, blood, digestion, metabolism, kidney, respiration, endocrines and reproduction.
- 311. General Bacteriology (5).** Lec. 3, Lab. 4. Winter and Summer.
For students in Home Economics. Elementary bacteriology as applied to foods, industry and home sanitation.
- 318. Physiology I (3).** Lec. 2, Lab. 2. Fall.
Theoretical and practical application of radioactive nuclides in biologic systems and principles of electronic instruments used in veterinary medicine.
- 320-21-22. Anatomy I, II, III (5-5-5).** Lec. 2, Lab. 10. Fall, Winter and Spring.
Gross anatomy of domestic animals. A progressive anatomical study of the gross structures of the dog, ox, horse, hog and fowl.
- 324. Veterinary Genetics (3).** Spring.
Basic principles of genetics with special reference to those anatomical and metabolic defects associated with inherited diseases of domestic animals.
- 326. Histology (5).** Lec. 2, Lab. 6. Fall.
Microscopic anatomy of the form, structure, and characteristics of basic animal tissues.
- 327. Organology (5).** Lec. 2, Lab. 6. Winter. Pr., VM 326.
Continuation of VM 326. Microscopic anatomy of the tissue composition of organs and organ systems.
- 328. Embryology (5).** Lec. 2, Lab. 6. Spring. Pr., VM 327.
Formation and early development of the embryos of domestic animals. Fetal membranes and placentation are emphasized.
- 329. Physiology II (3).** Winter.
Functions of the muscular, nervous and respiratory systems.
- 330. Veterinary Microbiology I (5).** Lec. 3, Lab. 4. Fall.
Fundamentals of microbiology for students in veterinary medicine.
- 331. Veterinary Microbiology II (5).** Lec. 3, Lab. 4. Winter. Pr., VM 330 or equivalent.
Sources and mechanisms of infections, principles of immunology, and biological prophylaxis and therapy. Also includes serological techniques used in diagnosis of infectious diseases.
- 336. Physiology III (5).** Lec. 4, Lab. 3. Spring.
Endocrine and reproductive systems of domestic animals.
- 421. Animal Physiology (5).** Winter.
Physiology of the farm animals with special emphasis on digestion, endocrinology and reproduction.
- 422. Animal Disease Control (5).** Spring. Pr., VM 421 and General Microbiology.
Herd management and practices proven to be of value in the prevention and control of the important diseases of farm animals.
- 436-37-38. Pharmacology I, II, III (5-3-5).** Lec. 3, Lab. 4. Fall, Winter and Spring.
Pharmacodynamics, posology and therapeutics of drugs with veterinary application. Drugs are designated by U.S.P., generic, and proprietary names.
- 443-44. Physiology IV, V (5-5).** Lec. 3, Lab. 6. Fall and Winter.
The digestive, hepatic, cardiovascular, and urinary systems.
- 450. Pathology I (5).** Lec. 3, Lab. 4. Fall. Pr., VM 326-327-328.
General pathology. Fundamental anatomic and functional alterations of cells and tissues in disease.

451. Pathology II (5). Lec. 3, Lab. 4. Winter. Pr., VM 450.
Study of disease processes affecting animals. Emphasis is placed on gross and microscopic changes in organs and systems.
452. Clinical Pathology (3). Lec. 1, Lab. 4. Spring. Pr., VM 451.
Methods for the collection, preservation, and examination of various body fluids including blood and urine. Interpretation of results is directed toward clinical diagnosis and prognosis.
453. Pathology III (3). Lec. 2, Lab. 2. Spring. Pr., VM 451.
Continuation of VM 451.
456. Veterinary Parasitology I (3). Lec. 2, Lab. 2. Fall.
Introduction to parasitology including internal parasites of ruminants.
457. Veterinary Parasitology II (5). Lec. 3, Lab. 4. Winter. Pr., VM 456.
Internal parasites of domestic animals.
458. Veterinary Parasitology III (3). Lec. 2, Lab. 2. Spring. Pr., VM 457.
Important ectoparasites of domestic animals.
461. Veterinary Microbiology III (5). Lec. 3, Lab. 4. Spring. Pr., VM 331 or equivalent.
Detailed study of bacteria, viruses, yeasts and molds causing diseases of domestic animals.
- 500-01-02. Veterinary Medicine I, II, III (5-5-3). Fall, Winter and Spring.
Detailed study of the etiology, symptoms, pathogenesis, diagnosis, treatment and prevention of the medical diseases affecting the various systems and organs of the equine, bovine, ovine and porcine species.
503. Veterinary Surgery I (3). Lec. 3. Winter.
Background of surgery; major surgical injuries-wounds, fluid loss and infection; preoperative and postoperative care; surgical technique; anesthesia; and extirpative, reconstructive and physiologic surgery.
504. Veterinary Surgery II (5). Lec. 5. Spring.
Special surgical diseases of the domestic farm animals including surgery of the alimentary canal, the chest and abdomen, the respiratory and cardiovascular systems, the eye and ear, the genito-urinary tract, and the feet and limbs.
508. Clinics III (2). Lab. 20, Spring.
Conferences, laboratory exercises and clinical practice in diagnosis, therapy, surgery, obstetrics and necropsy of domestic animals.
510. Veterinary Medicine IV (5). Fall.
Consideration of the noninfectious and parasitic diseases of the respiratory, cardiovascular, gastro-intestinal, urogenital and integumentary systems in the small domestic animals.
512. Veterinary Surgery III (5). Lec. 3, Lab. 4. Spring.
Lecture-specific basic surgical techniques. Laboratory-performance of basic surgical operations on anesthetized animals owned by the University.
519. Veterinary Medicine V (3). Spring. Pr., VM 510.
Continuation of VM 510. Detailed consideration of differential diagnosis of diseases of small domestic animals.
523. Veterinary Public Health I (5). Lec. 4, Lab. 2. Winter. Pr., VM 461.
Principles of epidemiology, selected diseases of animals transmissible to man and the relationship of the veterinarian to public health and animal disease control agencies.
526. Clinics I (2). Lec. 1, Lab. 4. Fall.
Demonstration and practice of methods employed in physical diagnosis, handling, restraint and administration of therapeutic agents to large animals.
527. Clinics II (2). Lec. 1, Lab. 4. Winter.
The demonstration and practice of methods employed in physical diagnosis, handling, restraint and administration of therapeutic agents to small animals.
528. Applied Anatomy (2). Lec. 1, Lab. 2. Fall.
Those aspects of anatomy related to diagnostic, obstetrical and surgical procedures.
530. Veterinary Radiology (3). Lec. 3. Winter.
Basic diagnostic radiology including interpretations, techniques, therapy and equipment.
- 531-51-52. Jurisprudence and Ethics (1-1-1). Winter and Summer.
Laws relating to duties of the veterinarian to the public and to his clients, his liabilities, rights, collection of fees, etc. Ethics as applied to the veterinary profession.
540. Veterinary Obstetrics I (2). Winter.
Infertility of the male and female. Artificial insemination.
550. Veterinary Obstetrics II (2). Spring.
Pregnancy diagnosis and the causes and corrections of dystocia in large animals.

- 553. Special Anatomy (1 to 5).** Hours and credit to be arranged. Pr., VM 320.
Elective course in which any phase of anatomy of domestic animals to the anticipated field of specialization may be studied.
- 554. Veterinary Medicine VI (5).** Summer.
Study and identification of the poisonous plants of the Southeastern states as well as their characteristic symptoms, lesions and treatment. Selected specific diseases of farm animals are also discussed.
- 555-56. Veterinary Medicine VII, VIII (5-5).** Fall and Winter.
Principal infectious diseases of the large domestic animals. Epizootiology, etiology, symptoms, diagnosis and prevention of diseases, including immunization and sanitation.
- 557. Applied Anatomy (1).** Lab. 2. Summer.
Aspects of anatomy which are related to diagnostic, obstetrical and surgical procedures.
- 558. Applied Anatomy (1).** Winter.
Aspects of anatomy which are related to diagnostic, obstetrical and surgical procedures.
- 559. Veterinary Medicine IX (3).** Lec. 3. Fall.
Consideration of the noninfectious diseases of the eye and central nervous system in the small domestic animals.
- 560. Veterinary Obstetrics III (3).** Lec. 3. Summer.
Clinical application of the physiology of reproduction. Teratology.
- 561. Veterinary Medicine X (3).** Lec. 3. Fall.
Methods of diagnosis, necropsy findings, and treatment of common chemical and venom poisoning of farm animals and pets.
- 566-67-68. Clinics IV, V, VI (5-5-5).** Lab. 22. Summer, Fall and Winter.
Conferences, laboratory exercises and clinical practice in diagnosis, therapy, surgery, obstetrics and necropsy of domestic animals.
- 569. Veterinary Public Health II (5).** Summer. Pr., VM 542, 458, and 461.
Principles and methodology of food hygiene including meat, milk, poultry, and other foods related to animal and human health.
- 572-73-74. Veterinary Surgery IV, V, VI (1-1-1).** Lab. 2. Summer, Fall and Winter.
Detailed consideration and performance of advanced small animal surgery.
- 582. Seminar (3).** Winter.
Literature reviews or research problems selected by the student. Papers written and oral presentation given before his class and faculty.
- 588. Veterinary Medicine XI (5).** Lec. 5. Winter.
Special emphasis on the newer aspects of diseases of metabolism and the nutritional diseases of farm animals. Includes diseases of swine and sheep.
- 592. Preceptorship (0).** Spring. Non-credit required course.
Completion of satisfactory internship during the spring quarter with reputable veterinary practitioner required for graduation.

GRADUATE COURSES

- 414. Techniques in Bacteriology (5).** Pr., VM 461 or equivalent and junior standing.
Any quarter by arrangement.
Advanced techniques used in bacteriology, pertaining to isolation, cultivation and identification of microorganisms. (Course limited to five students.)
- 418. General Pathology (5).** Lec. 3, Lab. 4. Fall. Pr., satisfactory courses in histology and physiology.
Fundamental alterations of disease, adapted for especially qualified graduate students. (Not available for candidates for M.S. in Veterinary Medicine.)
- 425. Intermediate Human Physiology (5).** Lec. 4, Lab. 2. Fall by arrangement.
Pr., VM 210 or its equivalent and junior standing.
For advanced students in home economics, education and others who are qualified. A detailed study of the physiology of the various organs of the body. (Not available for candidates for M.S. in Veterinary Medicine.)
- 441. Physiological Function Tests and Laboratory Diagnosis (5).** Lec. 4, Lab. 3.
Any quarter by arrangement. Pr., permission of the instructor, acceptable courses in physiology, and junior standing.
Chemical, photometric, and enzymatic procedures used in diagnosis of abnormal body functions. Included are function tests for the thyroid, liver, kidney, heart, pancreas, etc.
- 460. Histological Techniques (2 to 5).** Hours and credit to be arranged. Pr., VM 326 or equivalent and junior standing.
Techniques employed in the preparation of cytological and histological materials.

462. **Microbial Physiology (5).** Lec. 2, Lab. 6. Pr., VM 200 or other satisfactory courses in microbiology and senior standing. By arrangement.
Metabolic changes occurring within microorganisms, metabolites which are produced and actions on inorganic substances, nitrogenous compounds, citric acid, carbohydrates, etc. Microbial growth, biosynthesis and adaptation. Laboratory will stress qualitative and to a limited extent evidence of quantitative metabolic phenomena. (Available to especially qualified students in other schools as well as to candidates for M.S. in Veterinary Medicine.)
465. **Special Techniques in Histopathology (3).** Lab. 9. Pr., VM 453, VM 460. Any quarter by arrangement.
Special stains and techniques of histochemistry employed in the preparation of materials for histopathologic study.
467. **Gross Pathology (2).** Lab. 6. Pr., VM 453, junior standing and permission of instructor. Any quarter by arrangement.
Regular participation in autopsy examinations under supervision of senior staff members. Designed to give the graduate student experience in autopsy procedures and in diagnostic interpretation of gross lesions. (Required of all majors and minors in Pathology.)
470. **Health Physics (5).** Lec. 4, Lab. 3. Fall. Pr., permission of instructor. (Designed for students in biological and physical sciences who might use radioactive nuclides in their respective professions.)
Fundamental principles of radioactivity, instrumentation for detecting and monitoring radioactive nuclides; radiation effects on man; permissible radiation dosages; safe handling of radioactive substances; and shielding from various radiations.
480. **Radiological Techniques (5).** Lec. 3, Lab. 4. Any quarter by arrangement.
Radiographic techniques including assignments on basic radiation physics.
495. **Virology (5).** Lec. 2, Lab. 6. Pr., VM 200 and VM 204 or VM 461; junior standing. Spring.
Basic concepts, methods of isolation, cultivation and purification of viruses and rickettsiae. (For students in biological sciences, biochemistry, pharmacy and veterinary medicine.)
- 601-02. **Advanced Pathogenic Microbiology (5-5).** Lec. 2, Lab. 6. Any quarter by arrangement. Pr., acceptable courses in microbiology and immunology.
Identification of pathogenic microorganisms and their relationship to animal diseases.
- 604-05. **Immunology (5-5).** Lec. 2, Lab. 6. Pr., VM 461 or equivalent. Spring quarter by arrangement.
Immunizing agents, methods of establishing immunity, and techniques for demonstrating various types of immunity and antigen-antibody reactions. The work may be arranged to meet the particular interest of the student.
609. **Clinical Mycology (5).** Lec. 2, Lab. 6. Any quarter by arrangement. Pr., permission of the instructor and acceptable courses in bacteriology.
Methods and techniques used in isolating and propagating yeasts, molds and actinomycetes pathogenic for animals. Laboratory diagnosis of fungus infections in animals.
611. **Advanced Pathology (5).** Lec. 2, Lab. 6. Pr., VM 453 or equivalent. Spring or Summer.
Systemic and special pathology.
613. **Diagnostic Histopathology (1-5).** Hours and credit to be arranged. Pr., VM 465. Any quarter by arrangement.
Histopathology of diseases of domestic, wild and zoo animals. Appropriate material submitted for histopathologic diagnosis under the supervision of the pathologists.
615. **Oncology (5).** Lec. 1, Lab. 8. Pr., VM 465. Any quarter by arrangement.
The gross and microscopic pathology of the neoplasms of the domestic animals.
- 621-22. **Advanced Anatomy (5-5).** Lec. 2, Lab. 9. Pr., permission of instructor. Any quarter by arrangement.
A. Cardio-vascular Anatomy. B. Anatomy of the Uro-genital System. C. Neuroanatomy. D. The Anatomy of the Locomotor System, and E. The Anatomy of the Special Senses.
624. **Experimental Neuroanatomy (5).** Lec. 2, Lab. 9. Pr., VM 621-622 (C) Neuroanatomy. Any quarter by arrangement.
Results of especially oriented experimental lesions of the central nervous system employing the Horsley-Clark stereotaxic instrument.
- 625-26. **Advanced Histology of Domestic Animals (5-5).** Lec. 2, Lab. 9. Any quarter by arrangement.
Special phases of the microscopic structure of animal tissues and organs.
631. **Advanced Pathological Physiology (5).** Any quarter by arrangement. Pr., permission of the instructor and acceptable courses in physiology.
The physiological response of the body to disease. Diseases discussed will be those of the liver, kidney and digestive systems.

632. **Advanced Pathological Physiology (5).** Lec. 4, Lab. 3. Any quarter by arrangement. Pr., permission of the instructor.
Physiological explanation of abnormalities of the reproductive and endocrine systems.
633. **Advanced Pathological Physiology (5).** Lec. 4, Lab. 3. Any quarter by arrangement. Pr., permission of instructor.
Abnormalities of the nervous system which lend themselves to a physiological explanation.
- 635-36. **Advanced Veterinary Pharmacology (5-5).** Lec. 3, Lab. 4. Any quarter by arrangement. Pr., VM 436, VM 437, VM 438.
Pharmacology of some of the more important drugs used in veterinary medicine. In the laboratory, students will have an opportunity to determine the pharmacology of the drugs on the horse, cow, pig, and dog.
638. **Digestive Processes in Domestic Mammals (5).** Any quarter by arrangement. Pr., VM 421 or its equivalent.
Enzymatic and bacterial digestion as well as the motility of the gastro-intestinal tract in farm animals.
639. **Small Animal Nutrition (5).** Lec. 4, Lab. 3. Any quarter by arrangement. Pr., permission of the instructor and acceptable courses in physiology.
Requirement of amino acids, fats, carbohydrates, minerals and vitamins for dogs, cats and other small animals. Nutritional antagonists and symptoms of nutritional deficiencies in the animals.
643. **Veterinary Radiation Biology (5).** Lec. 4, Lab. 3. Any quarter by arrangement. Pr., permission of the instructor and acceptable courses in chemistry and animal physiology.
Instruments used for radiation detection, isotope techniques, and diagnostic tests used in animals, and the effects of radiation on animal tissues. Isotopes will be primarily gamma emitters.
645. **Electrocardiology and Blood Vascular Physiology (5).** Any quarter by arrangement. Pr., permission of instructor and acceptable courses in physiology.
Physiology of the blood vascular system and the advanced techniques used in electrocardiology.
647. **Canine Neurosurgery (5).** Lec. 2, Lab. 6. Any quarter by arrangement. Pr., permission of the instructor.
Applied anatomy, physiology, physical and radiographic diagnosis, and surgical correction of lesions (especially those of traumatic origin) affecting the nervous system of the dog.
- 651-52. **Advanced Large Animal Surgery (5-5).** Lec. 1, Lab. 8. Any quarter by arrangement.
Research in surgery. Advanced techniques for surgical procedures in domestic animals.
- 654-55. **Advanced Large Animal Medicine (5-5).** Lec. 1, Lab. 8. Any quarter by arrangement.
Special study of the causes, methods of diagnosis, treatment and methods of control and eradication of selected non-surgical diseases of domestic animals.
- 657-58. **Breeding Diseases of Animals (5-5).** Any quarter by arrangement.
Graduate study of fertility in domesticated animals, but particularly, investigation into the etiology, pathogenesis, and treatment of sterility and impaired fertility. Diseases of pregnancy and parturition are also included.
660. **Advanced Small Animal Surgery (5).** Lec. 1, Lab. 10. Any quarter by arrangement.
Techniques in general small animal surgery.
662. **Advanced Small Animal Orthopedic Surgery (5).** Lec. 1, Lab. 10. Any quarter by arrangement.
New techniques in general orthopedic surgery.
663. **Advanced Small Animal Eye Surgery (5).** Lec. 1, Lab. 10. Any quarter by arrangement.
New techniques in eye surgery.
- 664-665. **Advanced Small Animal Medicine (5-5).** Lec. 1, Lab. 10. Any quarter by arrangement.
Causes, methods of diagnosis, treatment and control of non-surgical diseases of small animals.
666. **Advanced Canine Neurology (5).** Lec. 3, Lab. 6. Any quarter by arrangement.
Etiology of diagnosis, treatment and control of neurological diseases of the dog.
667. **Normal Radiological Anatomy (5).** Lec. 4, Lab. 2. Any quarter by arrangement.
Normal structure, size and position of the various organs as they appear on flat and contrast radiographs.

668. **Advanced Radiology (5).** Lec. 1, Lab. 8. Any quarter by arrangement. Advanced radiographic techniques including fluoroscopy, uses of contrast mediums, and the principles of image intensification and cineradiography.
669. **Radiological Interpretations (5).** Lec. 1, Lab. 8. Any quarter by arrangement. Advanced study of radiological interpretation of pathological lesions of domestic animals.
671. **Small Animal Cardiovascular Surgery (5).** Lec. 1, Lab. 10. Any quarter by arrangement. Application of accepted, as well as the recently developed techniques of cardiovascular surgery.
696. **Seminar (0).** Non-credit course required of all graduate students in Veterinary Medicine. Meets regularly at scheduled intervals each year during Summer Quarter.
698. **Research Problems (2 to 5).** (Credit to be arranged.)
699. **Research and Thesis.** (Credit to be arranged.)

Zoology-Entomology (ZY)

Professors Arant, Baker, Blake, Dendy, Dusi, Hays, J. M. Lawrence, Ottis, Pearson, and Swingle
*Research Lecturer Porter**

Associate Professors Allison, Berger, Cunningham, Hyche, Ivey, Mount, Prather, and Shell

Assistant Professors Bass, Boyd, Canerday, Dixon, Estes, Gilliland, Greene, Kouskolekas, F. Lawrence, Mason, Speake, and J. E. Watson
Visiting Assistant Professor Fijan

Instructors Folkerts, Johnson, Mantel, and R. L. Watson

100. **Zoological Orientation (0).** Lec. 1. Fall. Historical and current concepts embodied in various disciplines of the zoological sciences.
101. **General Zoology (5).** Lec. 4, Lab. 2. All quarters. Principles of animal biology emphasizing metabolism, growth, reproduction, and inheritance; structure, habit, function, distribution, and economic importance of non-chordate animals.
102. **General Zoology (5).** Lec. 4, Lab. 2. Pr., ZY 101. All quarters. Study of the structure, habits, development, function, distribution, heredity, and economic importance of chordate animals.
204. **Insects (3).** General elective. Introduction to the study of life processes, occurrence, and importance of insects. (May not be taken for credit by students who have already earned credit in a more advanced course in entomology.)
205. **Wildlife Conservation (3).** Fall. General elective. Conservation and natural history of important wildlife animals, especially Alabama fish, amphibians, reptiles, birds and mammals. Some field trips may be required, as substitute for part of the scheduled lectures. (May not be taken for credit by students who have already earned credit in more advanced wildlife courses.)
206. **Conservation in the United States (3).** Winter, Spring, Summer. General elective. Basic facts essential to an understanding of current problems pertaining to the conservation of our rapidly depleting natural resources such as soil, water, minerals, forest, and wildlife. Especially planned for elementary and high school teachers.
207. **Birds (3).** Lec. 3. Fall, Summer. General elective. Birds in relation to agriculture and game management, recognition of various species as to flight, color markings, songs, and feeding habits. (May not be taken for credit by students who have already earned credit in ZY 422.)
210. **Fish Culture (3).** Lec. 3. Winter. General elective. Introduction to the construction and management of ponds, and the principles underlying fish production; also fishing methods, bait production, and the identification of the more common sport fish. (May not be taken for credit by students who have already earned credit in a more advanced course in fisheries.)
214. **Vertebrate Physiology and Anatomy (5).** Lec. 4, Lab. 3. Fall. Pr., ZY 102. Function and structure of the organ systems of the vertebrate. Aimed primarily to fill the needs of students in the Schools of Agriculture and Education. Cannot be used as a prerequisite to ZY 424.

* On leave.

300. **Genetics (5).** Lec. 4, Lab. 3. All quarters. Pr., ZY 101-2 or BY 101-2 and MH 107, or equivalent.
Designed to acquaint the student with basic genetic principles, theoretical basis for genetic systems, and modern areas of research. Laboratory work emphasizes experiments with the fly, *Drosophila*.
301. **Comparative Anatomy (5).** Lec. 3, Lab. 6. All quarters. Pr., ZY 101-2.
Comparisons of the systems of the vertebrates.
302. **Vertebrate Embryology (5).** Lec. 3, Lab. 6. Fall, Winter, Spring. Pr., ZY 101-2.
Consideration of the details of fertilization, cleavage, morphogenesis, and organogenesis of the amphioxus, frog, chick, pig, and human from a descriptive and analytical viewpoint. Laboratory work will consist of prepared material supplemented with available living material.
304. **General Entomology (5).** Lec. 4, Lab. 3. Fall, Spring, Summer. Pr., ZY 101-2.
General characteristics and habits of the orders and families of the Class Insects.
305. **Forest Entomology (5).** Lec. 4, Lab. 2. Spring. Pr., ZY 101.
Principles of entomology in relation to insects of forests and forest products; recognition, life histories, and control of major insects of forests.
306. **General Animal Ecology (3).** Lec. 2, Lab. 3. Spring. Pr., 10 hours of general zoology or permission of instructor.
Introduction to physical and biotic factors of environment and how these factors affect animal life. Effects of one animal or group of animals on another animal or group.
308. **Micrology (5).** Lec. 3, Lab. 6. Fall, Winter, Spring. Pr., ZY 102.
Basic processes and principles of micrology. Laboratory methods of fixation, embedding, sectioning, coloring, and mounting of tissues of vertebrate and invertebrate animals.
312. **Practical Fish Culture (5).** As arranged.
Credit will be arranged for 3 months work in a state or federal hatchery or in an approved commercial hatchery or on other phases of fish culture.
326. **Wildlife Biology (5).** Lec. 3, Lab. 6. Winter. Pr., a course in ecology.
Basic principles of the ecology of wildlife populations and their relations to natural habitat. Laboratory work will consist of practical exercises designed to acquaint the student with modern methodology and technique in studying wild bird and mammal populations.
401. **Invertebrate Zoology (5).** Lec. 3, Lab. 6. Winter. Pr., ZY 101-2 and junior standing.
Biology, taxonomy, and ecology of invertebrate animals.
402. **Economic Entomology (5).** Lec. 4, Lab. 3. Fall, Spring, Summer. Pr., junior standing.
Consideration of the biological aspects, life histories, and control of insects.
404. **Medical Entomology (5).** Lec. 4, Lab. 3. Spring. Pr., ZY 304 and junior standing.
Insects, mites, and ticks of parasitological or medical importance to man. Emphasis placed on the role of arthropods in transmission of protozoan and other diseases and prevention of these diseases by controlling their arthropod vectors.
405. **Forest Insects (5).** Lec. 4, Lab. 3. Fall. Pr., ZY 304, 305, or 402 and junior standing.
Principal insects of forests and forest products; their importance, taxonomy, bionomics, and control. Emphasis will be placed on life histories and habits, identification by morphological characteristics and type of damage, and control by chemical, biological, and cultural or forest-management practices.
406. **Bee Culture (3).** Lec. 2, Lab. 3. Spring. Pr., ZY 101 and junior standing.
Manipulation and production of bees and honey, and a consideration of bee diseases.
407. **General Insect Morphology (5).** Lec. 3, Lab. 6. Spring. Pr., ZY 304 and junior standing.
Comparative external anatomy and generalized internal structures of insects; characteristics used in taxonomy will be emphasized.
409. **Histology (5).** Lec. 3, Lab. 6. Spring, Summer. Pr., ZY 102 and junior standing.
Morphology, histogenesis, regeneration and repair, and classification of tissues; arrangement of tissues in organs and systems of vertebrate animals.
410. **Systematic Entomology (5).** Lec. 2, Lab. 6. Winter. Pr., ZY 304 and junior standing.
Principles of systematics and identification of insects through orders, families, genera, and species.

411. **General Parasitology (5).** Lec. 3, Lab. 6. Fall, Winter, Summer. Pr., ZY 101-2 and junior standing.
Origin, adaptations, physiology, and ecology of parasites. Identification and life histories of representative parasitic protozoa, helminths, and arthropods with emphasis on host-parasite relationships. Techniques of examining animals for the presence of parasites and the proper preparation of such collections for study.
414. **Aquatic Insect Taxonomy (3).** Lec. 1, Lab. 6. Summer, even years. Pr., ZY 304 and junior standing.
Collection and identification of common aquatic insects, with emphasis on the immature forms.
415. **Limnology (5).** Lec. 3, Lab. 6. Spring. Pr., CH 104, PS 205, ZY 101-2, and junior standing.
Biological, chemical, and physical factors affecting aquatic life.
416. **Biological Productivity and Water Quality (3).** Lec. 1, Lab. 6. Fall. Pr., CH 208 or consent of instructor and junior standing.
Biological and chemical measures of water quality in streams and impoundments as related to fisheries. Effects of pollution, fertilization, and feeding of fish upon water quality.
- 418-19. **Experimental Heredity (3-3).** Lec. 1, Lab. 4. Fall, Winter. Pr., ZY 300 and junior standing.
A two-quarter sequence in advanced experimental methods in genetics. Research problems utilizing various laboratory organisms will extend throughout the two quarters.
420. **Human Heredity (5).** Lec. 5. Spring. Pr., ZY 300, CH 208, and junior standing.
Effects and normal and abnormal chromosome complements, the biological interaction of genes, and the effects of mutation and changes in gene frequency on human populations; problems in small sample analyses, biochemical screening of human "carriers," and the prospects for genetic engineering.
421. **Vertebrate Zoology I (5).** Lec. 3, Lab. 6. Spring. Pr., ZY 102 and junior standing.
Taxonomy, ecology, and evolution of fishes, amphibians, and reptiles.
422. **Vertebrate Zoology II (5).** Lec. 3, Lab. 6. Fall, Summer. Pr., ZY 102 and junior standing.
Basic taxonomy, ecology, evolution, and some biological principles of birds and mammals. Laboratory studies in radio-telemetry, bioacoustics, and population dynamics are used in addition to classical vertebrate zoology exercises.
424. **Animal Physiology (5).** Lec. 4, Lab. 3. Fall, Winter, Spring. Pr., ZY 301 and junior standing.
Systematic study of the physiology of the nervous system, special senses, circulation, respiration, digestion, kidney function, hormonal control, and reproduction. An effort is made to acquaint the student with methods of experimentation as a means for the direct acquisition of physiological facts.
425. **Forest Wildlife Management (3).** Lec. 3. Spring. Pr., FY 420 or permission of instructor.
Principles of wildlife management as applied to forest properties. Restricted to students in forestry.
426. **Principles of Game Management (5).** Lec. 4, Lab. 3. Fall. Pr., ZY 326 and junior standing.
Fundamentals of game management theory, application, and administration.
427. **Wildlife Habitat Analysis (3).** Lec. 1, Lab. 6. Spring. Pr., ZY 426, BY 406, and junior standing.
Practical exercises in vegetation analysis, utilization studies, aerial photograph interpretation, and cover type mapping.
428. **Hatchery Management (5).** Lec. 3, Lab. 4. Spring. Pr., ZY 102 and junior standing.
Operation of hatcheries for production of cold- and warm-water game fish and bait minnows; care of brood fish; methods of stocking, fertilizing, supplementary feeding, and controlling weeds; transportation of fish; control of parasites; and related hatchery problems.
431. **Ecology and Taxonomy of Animals (5).** Lec. 3, Lab. 6. Summer. Pr., teaching experience and consent of instructor.
Principles of ecology and taxonomy using field studies and museum materials. Field trips to study ecological habitats. Restricted to participants in the NSF Summer Institute of Biology. A separate section for other qualified students will be offered upon sufficient demand.

432. **Advanced Animal Biology (5).** Lec. 3, Lab. 4. Summer. Pr., teaching experience and consent of instructor.
Principles of zoology with emphasis on morphology and physiology of the mammalian systems. Restricted to participants in the NSF Summer Institute of Biology, but will be offered in a separate section to other qualified students upon sufficient demand.
435. **Marine Biology (3).** Fall. Pr., acceptable chemistry background, ZY 101-2 or equivalent, and junior standing.
Introduction to the physical, chemical, and biological characteristics of the marine environment.
436. **Management of Small Impoundments (3).** Lec. 1, Lab. 6. Summer. Pr., ZY 102 and junior standing.
Consideration of the species of fish used in management of small impoundments, species balance, population balance analysis, methods of correcting unbalanced conditions, renovation of old impoundments, and related problems of water management.
437. **Fisheries Biology (3).** Fall. Pr., ZY 102 and junior standing.
An introduction to the study of vital statistics of fish populations.
440. **Physical Marine Geology (4½).** Lec. 2, Lab. 5. Summer only. Pr., physical and historical geology, mineralogy, and junior standing.
General introduction to the physical processes on the shores of Mississippi Sound, emphasizing the erosional and depositional effects of waves and currents. Beaches and spits periodically surveyed to measure changes in shape, height, cross-section, lateral shift, and particle distribution and to observe growth and destruction of bars, cusps, spits and tide-pools. Offered only at the Gulf Coast Research Laboratory, Ocean Springs, Mississippi.
441. **Chemical Marine Geology (4½).** Lec. 2, Lab. 5. Summer only. Pr., physical and historical geology, mineralogy, CH 105 and CH 206, and junior standing.
Supervised research in the chemistry of the waters of Mississippi Sound and geochemistry of the bottoms. Lateral, vertical and tidal changes in water composition. Analyses of core samples taken from different environments: bayous, mudflats, bars, oyster reefs, bays, tidal channels and sandy shelves. Offered only at the Gulf Coast Research Laboratory, Ocean Springs, Mississippi.
442. **Marine Invertebrate Zoology (9).** Lec. 5, Lab. 12. Summer only. Pr., 18 hours of biology including ZY 101-2, and junior standing.
A general study of the anatomy, life histories, distributions, and phylogenetic relationships of all marine phyla below the chordates. Laboratory and field work included. Offered only at the Gulf Coast Research Laboratory, Ocean Springs, Mississippi.
443. **Marine Vertebrate Zoology and Ichthyology (9).** Lec. 5, Lab. 12. Summer only. Pr., 18 hours of biology including ZY 101-2 and junior standing.
A general study of the marine chordata, including lower groups and the mammals and birds, with most emphasis on the fishes. Offered only at the Gulf Coast Research Laboratory, Ocean Springs, Mississippi.
444. **Marine Fisheries Biology (6).** Lec. 3, Lab. 9. Summer only. Pr., 25 hours of zoology including ZY 421, and junior standing.
Survey of the principles of the subject beginning with a study of fishery landing statistics of the United States followed by other areas of the earth. The classic theory will be examined and statistical applications will be made to various Gulf of Mexico fisheries. Offered only at the Gulf Coast Research Laboratory, Ocean Springs, Mississippi.
445. **Fish Parasites (3).** Lec. 1, Lab. 6. Winter. Pr., ZY 411 and junior standing.
The external and internal parasites of fishes, their identification, and control; laboratory studies on life histories and epidemiology of parasite populations in ponds and impoundments.
446. **Fish Diseases (3).** Lec. 1, Lab. 6. Spring. Pr., VM 200 and junior standing.
Bacterial and viral diseases of fishes, their isolation, culture identification, and control.
498. **Special Problems (1-3).** Pr., senior standing.
A. Zoology; B. Entomology; C. Fisheries Management; D. Wildlife Management. A student can register for a total of not more than three hours credit.

GRADUATE COURSES

601. **Insect Morphology (3).** Lec. 1, Lab. 6. Fall. Pr., ZY 407.
Detailed studies of the internal structures of insects.
602. **Advanced Insect Taxonomy (5).** Lec. 1, Lab. 8. Summer, odd years. Pr., ZY 410.
Principles of systematics including phylogeny with emphasis on a particular group of insects which the student may choose.
603. **Insect Physiology (5).** Lec. 3, Lab. 6. Spring, even years. Pr., ZY 424 and ZY 601.
General and comparative physiology of the organ systems of insects. A minimum of two literature reviews will be made by each student during the quarter.

604. **Insect Toxicology (5). Lec. 4, Lab. 3. Winter.**
Toxic action of insecticides; analysis, preparation and use of insecticides; spray residues in relation to health; research methods in insect toxicology.
605. **Ornithology (5). Lec. 3, Lab. 6. Spring. Pr., ZY 422.**
Ecology and behavior of birds.
606. **Mammology (5). Lec. 3, Lab. 6. Winter. Pr., ZY 422.**
Taxonomy, ecology, and behavior of mammals.
607. **Farm Game Management (5). Lec. 3, Lab. 6. Fall. Pr., ZY 426.**
For graduate students majoring in Game Management or Fisheries Management. Application of game management theories, techniques, and administration with special emphasis on farm game species.
608. **Forest and Range Game Management (5). Lec. 3, Lab. 6. Winter. Pr., ZY 426.**
For graduate students majoring in Game Management or Fisheries Management. Application of game management theories, techniques, and administration with special reference to forest and range game.
609. **Advanced Applied Entomology (5). Lec. 4, Lab. 3. Spring. Pr., ZY 402.**
Integrated control of the principal insects by environmental, biological, genetic, chemical, and legal means.
610. **Immature Forms of Insects (5). Lec. 2, Lab. 6. Winter. Pr., ZY 410.**
Structure and identification of immature forms of insects; methods of collecting and preserving; development and use of keys for classifying immature insects.
611. **Advanced Insect Morphology and Embryology (3). Lec. 1, Lab. 6. Winter. Pr., ZY 601.**
Insect morphology in relation to comparative embryological developments of insects.
612. **Advanced Insect Toxicology (5). Lec. 4, Lab. 3. Spring, odd years. Pr., ZY 604.**
Mode of action, mode of entry, relation of chemical structure to toxicity, and precision methods of determination of insecticides; recent developments in the field of insecticide chemistry.
613. **Insect Pathology (5). Lec. 3, Lab. 4. Fall. Pr., VM 200, ZY 402, and consent of instructor.**
The microorganisms associated with diseases in insects and their pathological effects on insects and insect populations.
614. **Physiology of the Cell (3). Winter. Pr., ZY 424 and Organic Chemistry.**
Examination of the basic physiological processes at the cellular level with the tools and approaches of physical science.
615. **Advanced Fisheries Biology (3). Lec. 2, Lab. 3. Winter. Pr., ZY 437.**
Concepts of population dynamics, yield prediction equations, and the interaction of reproduction, growth, and mortality in fish populations.
616. **Systematic Ichthyology (5). Lec. 1, Lab. 8. Spring. Pr., ZY 421.**
Principles of classification and the construction and utilization of keys for the identification of fishes.
617. **Advanced Limnology (3). Lec. 1, Lab. 6. Winter. Pr., ZY 415.**
Principles and methods employed in modern limnological research.
618. **Aquaculture (3). Winter. Pr., ZY 416.**
Principles underlying aquatic productivity and levels of management as demonstrated by domestic and foreign lotic and lenitic cultures of fish and other aquatic crops.
621. **Management of Streams and Large Impoundments (5). Lec. 4, Lab. 3. Summer. Pr., ZY 437 or its equivalent.**
Fish populations of streams and large impoundments and a consideration of methods for the management of these populations.
622. **History and Literature of Zoology (4). Lec. 3, Lab. 3. Winter. Pr., graduate standing.**
A historical review of the classical authors and great works in zoological literature. Laboratory will concentrate on examining and learning to use journals, abstracts, and reference materials in the library.
623. **Organic Evolution (5). Winter. Pr., ZY 430 or ZY 300.**
Evolutionary principles as illustrated by the various biological disciplines, particularly genetics, paleontology, zoogeography, and systematics in general.
624. **Advanced Animal Physiology (5). Lec. 3, Lab. 6. Winter. Pr., ZY 424.**
Neuromuscular, neurocirculatory, and neurohormonal basis for animal behavior. A minimum of two literature reviews will be required of each student during the quarter.

627. **Immunology and Physiology of Parasites (5).** Lec. 3, Lab. 6. Winter, even years. Pr., ZY 411, VM 200, ZY 424, and consent of instructor.
Immunity mechanisms to infections of protozoan and helminth parasites. Chemical physiology of host-parasite relationship to include nutrition, metabolism, toxicity, and chemotherapy.
628. **Endocrinology (5).** Lec. 3, Lab. 6. Spring. Pr., ZY 424 and Organic Chemistry.
For qualified students in animal biology who wish to make a rigorous study of the animal hormones. Operative removal of glands and studies before and after treatment will be made in the laboratory.
630. **Advanced Genetics (5).** Winter. Pr., ZY 300 and BY 401.
Non-Mendelian hereditary systems; regulation of gene action as it influences growth, differentiation, and development; the use of statistics as an investigational tool; and the status of contemporary genetic research.
632. **Helminthology (5).** Lec. 3, Lab. 6. Spring. Pr., ZY 411.
Advanced studies of the morphology, physiology, life cycles, and host-parasite relationships of helminths. Opportunity for making extensive literature studies and collections of the parasites of a particular group of animals in which the student is most interested.
634. **Protozoology (5).** Lec. 3, Lab. 6. Winter, odd years. Pr., ZY 411.
Free-living and parasitic protozoa important to agriculture, wildlife, and man. Morphology, physiology, reproduction, ecology, and life histories of parasitic forms will be emphasized.
635. **Furbearer and Waterfowl Management (5).** Lec. 3, Lab. 4. Winter. Pr., ZY 426.
For graduate students with a major or minor in wildlife management. A study of furbearers and waterfowl resources. Emphasis is placed on problems of management and utilization.
636. **Ecology of Animal Populations (3).** Fall. Pr., ZY 306.
An investigation of the balance of nature, population cycles, natural regulation of animal numbers, competition, epizootics, and the compensatory adjustments of populations to changes in the environment.
637. **Herpetology (5).** Lec. 1, Lab. 8. Spring. Pr., ZY 421.
A study of the morphology, taxonomy, ecology, and behavior of amphibians and reptiles. Laboratory collecting, preserving, and identification of local specimens will be an important consideration.
640. **Nematology (3).** Lec. 2, Lab. 3. Spring. Pr., ZY 401 or 411.
Study and identification of the free-living soil- and aquatic nematodes and of the insect-parasitic nematodes. Detailed consideration of aspects of nematode morphology, reproduction, development, behavior, physiology, and ecology.
641. **Field Entomology (3).** Lec.-Dem. 4. Fall or Spring. Pr., graduate standing.
Identification of more important orders, families, and species of insects; a consideration of morphology, physiology, and development of insects; control of major pests. A collection of at least 100 species of economic insects will be required.
642. **Chemical Control of Insects (3).** Lec.-Dem. 4. Winter. Pr., graduate standing.
Properties of insecticides, including toxic action in living organisms; major uses and methods of application of formulations; hazards involved in handling insecticides; spray residues in relation to marketability of crops.
643. **Heredity and Evolution (5).** Lec. 5. Summer. Pr., teaching experience and consent of instructor.
Basic principles of genetics and contemporary evolutionary theory. Suitable laboratory methods and exercise will be demonstrated and discussed. Restricted to participants in the NSF Summer Institute of Biology, but will be offered in a separate section to other qualified students upon sufficient demand.
693. **Seminar.** (Credit to be arranged.)
697. **Problems in Marine Zoology (4-9).** All year. Pr., ZY 442-3.
Supervised research on specific problems in marine zoology for graduates. Offered only at the Gulf Coast Research Laboratory, Ocean Springs, Mississippi.
698. **Special Problems (2-5).** All quarters.
A. Zoology; B. Entomology; C. Apiculture; D. Parasitology; E. Physiology; F. Fisheries; G. Wildlife.
699. **Research and Thesis.** (Credit to be arranged.)
799. **Doctoral Research and Dissertation.** (Credit to be arranged.)

Faculty and Staff

1966-67

(The first date after the title indicates the year of first appointment to any position in the institution; the second, the year of appointment to present rank. Effective date of resignation shown only for persons whose names were not carried in a previous catalog.)

GENERAL ADMINISTRATIVE OFFICERS

- ANDREWS, WARREN M. _____ *Director of Nuclear Science Center*, 1961, 1965
B.S., Auburn University; M.S., Vanderbilt University; M.S., Ph.D., University of California.
- BEAR, ROBERT J. _____ *Comptroller and Assistant Treasurer, Business Office*, 1961
B.S., Cornell University; M.B.A., George Washington University.
- BEARD, G. W. _____ *Director of Athletics*, 1937, 1951
B.S., Auburn University.
- BENTLEY, CHARLES S. _____ *Assistant Dean of Student Affairs*, 1951, 1965
B.S., M.S., Auburn University.
- BRADLEY, MARY HART _____ *Assistant Dean of Women*, 1962, 1963
B.S., M.A., University of Alabama.
- BROWN, MORGAN WITHERILL _____ *Director, Student Health Service*, 1950
B.S., University of Alabama; M.D., Tulane School of Medicine.
- CAIN, JOHN LEONARD _____ *Director of Engineering Extension*, 1962
B.Ch.E., Georgia Institute of Technology.
- CATER, KATHARINE COOPER _____ *Dean of Women and Social Director*, 1946
A.B., Limestone College; M.A., Mercer University; M.S., Syracuse University; Litt.D., Limestone College.
- COLEMAN, MARY E. _____ *Associate Director for Women's Work,
Cooperative Extension Service*, 1936, 1965
B.S., Auburn University; M.A., Columbia University.
- COX, JULIUS GRADY _____ *Assistant Dean of Engineering*, 1949, 1965
B.S., M.S., Auburn University; Ph.D., Purdue University.
- DUNLAP, JOHN FRETWELL _____ *Director, Student Financial Aid*, 1959, 1962
B.S., Clemson University.
- FARLEY, W. SCOTT _____ *Placement Director*, 1964
B.S., Auburn University.
- FISHER, HOMER S., JR. _____ *Assistant Registrar*, 1963, 1966
B.S., M.B.A., Auburn University.
- FOY, JAMES EDGAR _____ *Dean of Student Affairs*, 1950, 1960
A.B., M.A., University of Alabama.
- FUNCHESS, LINWOOD E. _____ *Director of Buildings and Grounds*, 1957
B.S., Auburn University; M.S., Cornell University.
- GARNER, JAMES MONROE, JR. _____ *Radiological Safety Officer*, 1966
B.S., Daniel Baker College.
- HAWKINS, HERBERT N. _____ *Director of Admissions*, 1962, 1966
B.S., M.S., Auburn University.
- HILL, A. J. _____ *Assistant Business Manager*, 1965
B.S., Auburn University; M.B.A., Northwestern University.
- INGRAM, WILLIAM TRAVIS _____ *Business Manager and Treasurer*, 1925, 1953
- JONES, RALPH R. _____ *Associate Director of Cooperative Extension Service*, 1936, 1962
B.S., Auburn University; M.S., Michigan State University.
- JONSON, WILLIAM CRAWFORD, JR. _____ *Director, Auburn Research
Foundation*, 1956, 1959
B.S., U.S. Naval Academy.

- KILLIAN, ALBERT F. _____ Registrar, 1964, 1966
B.S., M.S., Auburn University.
- LEISCHUCK, GERALD S. _____ Institutional Research Officer, 1963, 1966
A.B., M.A., Colorado State University; Ed.D., Auburn University.
- OPPENHEIMER ERNEST A. _____ Director, Student Counseling Service, 1964, 1966
B.A., Amherst College; M.B.A., New York University; Ph.D., Teachers College, Columbia University.
- REAVES, RAYMOND M. _____ Assistant to the Director, Field Service,
B.S., Auburn University. Cooperative Extension Service, 1927, 1962
- ROUSE, R. D. _____ Associate Director, Agricultural Experiment Station, 1949, 1966
B.S., M.S., University of Georgia; Ph.D., Purdue University.
- SARVER, JOSEPH B. _____ Executive Secretary of Alumni Association,
B.S., Auburn University. Director, Auburn Development Program, 1951, 1960
- SAUNDERS, ROBERT LAWRENCE _____ Assistant Dean of Education, 1957, 1965
B.S., M.S., Ed.D., Auburn University.
- SIMMONS, CHARLES FERDINAND _____ Assistant Director, Agricultural
Experiment Station, 1946, 1955
B.S., M.S., Auburn University; Ph.D., Ohio State University.
- TAYLOR, W. H. _____ Assistant Director, Cooperative Extension
B.S., Auburn University; M.S., Cornell University. Service, 1946, 1965
- TINCHER, WILBUR A., JR. _____ Director of Educational Services, 1958, 1966
A.B., M.A., Ed.D., University of Kentucky.
- WARREN, HOYT M. _____ Assistant Director, Cooperative Extension
B.S., Auburn University; M.S., Ed.D., Cornell University. Service, 1945, 1965
- WARMAN, JAMES C. _____ Director of Water Resources Research Institute, 1965
A.B., M.S., West Virginia University.
- WEGENER, EDWARD PALMER _____ Director of Educational Television, 1954
B.S., University of Minnesota.
- WHITE, J. HERBERT _____ Director of University Relations, 1965
B.S., Auburn University.

FACULTY

- PHILPOTT, HARRY M. *President*, 1965
A.B., Washington and Lee University; Ph.D., Yale University; D.D. (Hon.), Stetson University; LL.D. (Hon.), Washington and Lee University.
- BAILEY, WILFORD S. *Vice President for Academic Affairs*, 1942, 1966
D.V.M., M.S., Auburn University; Sc.D., Johns Hopkins University.
- LANHAM, BEN T., JR. *Vice President for Research*, 1939, 1966
B.S., Clemson University; M.S., University of Tennessee; Ph.D., Michigan State University.
- ROBERTSON, FRED R. *Vice President for Extension*, 1959, 1966
B.S., M.S., University of Tennessee; Dr.P.A., Harvard University.
- VALLERY, H. F. *Assistant to the President*, 1950, 1960
B.A., M.A., Louisiana State University; M.A., Ed.D., Columbia University.
- HUNTLEY, MICHEL C. *Dean of Faculties*, 1949
B.A., Millsaps College; M.A., Emory University; LL.D., Millsaps College; Litt. D., University of Miami.
- ABNEY, LOUIS O. *Associate Professor of Art*, 1950, 1959
B.App.Art, M.App.Art, Auburn University.
- ADAMS, CLEVELAND L. *Head Professor of Textile Technology*, 1952
B.T.E., Auburn University.
- ADAMS, FRED *Professor of Agronomy and Soils*, 1955, 1965
B.S., M.S., Louisiana State University; Ph.D., University of California.
- ADAMS, MARY ANDERS *Counselor, Student Counseling Center*, 1966
B.S., Ohio State University; M.Ed., Auburn University.
- ALBERT, R. A., JR. *Assistant Professor, Small Animal Surgery and Medicine*, 1962, 1966
D.V.M., Auburn University.
- ALEXANDER, HERMAN D. *Associate Professor of Physiology and Pharmacology*, 1950, 1963
B.S., M.S., Ph.D., Auburn University.
- ALEXANDER, KATHERINE *Instructor in English*, 1964
B.A., M.A., Baylor University.
- ALEXANDER, LON, JR. *Instructor in History and Political Science*, 1964
B.A., M.A., Baylor University.
- ALFORD, WILLIAM L. *Professor of Physics and Nuclear Science*, 1952, 1964
A.B., Vanderbilt University; M.S., Ph.D., California Institute of Technology.
- ALLEN, ROGER WILLIAM *Dean, School of Science and Literature*, 1928, 1941
B.S., M.S., Auburn University; M.S., University of Michigan; Ph.D., Columbia University.
- ALLEN, WARD SYKES *Associate Professor of English*, 1964
B.A., M.A., Ph.D., Vanderbilt University.
- ALLEN, WILLIAM H., JR. *Associate Professor of Economics and Business Administration*, 1966
A.B., Centre College; LL.B., M.A., University of Alabama; B.D., Union Theological Seminary.
- ALLEY, ALVIN D. *Assistant Professor of Secondary Education*, 1966
B.A., M.A., Florida State University.
- AMACHER, RICHARD E. *Professor of English*, 1957, 1965
A.B., Ohio University; Ph.D., University of Pittsburgh.
- AMLING, HARRY J. *Associate Professor of Horticulture*, 1958, 1959
B.S., Rutgers University; M.S., University of Delaware; Ph.D., Michigan State University.
- ANDELSON, ROBERT V. *Assistant Professor of Philosophy*, 1965
A.A., Los Angeles City College; A.B., University of Chicago; A.M., Ph.D., University of Southern California.
- ANDERSON, NEIL V. *Assistant Professor of Small Animal Surgery and Medicine*, 1965
B.S., Mankato State College; B.S., D.V.M., University of Minnesota.
- ANDRESS, LARRY J. *Instructor of Economics*, 1965
B.S., Troy State College; M.B.A., University of Southern Mississippi.
- ANSON, CHARLES P. *Head Professor Economics and Business Administration*, 1946
A.B., University of Wisconsin; M.A., Ohio State University; Ph.D., University of North Carolina.

- ANTHONY, W. B. *Professor of Animal Science*, 1953, 1955
B.S., University of Illinois; M.S., Texas A. & M. University; Ph.D., Cornell University.
- APPLEBEE, FRANK W. *Head Professor of Art*, 1926, 1932
Diploma, Massachusetts College of Art; B.S., M.App.Art, Auburn University.
- *APPLEBEE, MARTHA S. *Instructor of Art*, 1950, 1965
B.A., Denison University; M.A., State University of Iowa.
- ARANT, FRANK S. *Head of Department, Zoology-Entomology*, 1926, 1949
B.S., M.S., Auburn University; Ph.D., Iowa State University.
- ASHBAUGH, ALEX C. *Assistant Professor of Elementary Education*, 1966
B.A., M.A., Furman University; Ed.D., University of Georgia.
- ASKEW, RAYMOND F. *Associate Professor of Physics*, 1960, 1965
B.S., Birmingham-Southern College; M.S., Ph.D., University of Virginia.
- ASKINS, DONALD H. *Instructor in English*, 1965
B.S., Auburn University; M.A., University of Virginia.
- ATKINS, ALWYN J. *Head Professor of Secondary Education*, 1956, 1964
B.S., University of Chattanooga; M.S., Ph.D., University of North Carolina.
- ATKINS, GEORGE A. *Assistant Football Coach*, 1956
B.S., Auburn University.
- *ATKINS, LEAH R. *Instructor in History and Political Science*, 1958, 1962
B.S., M.A., Auburn University.
- ATTLEBERGER, MARIE H. *Associate Professor of Microbiology*, 1947, 1959
D.V.M., M.S., Auburn University.
- AUTREY, K. M. *Head of Department, Dairy Science*, 1947
B.S., Louisiana State University; M.S., Ph.D., Iowa State University.
- BAGWELL, JAMES E. *Assistant Professor of Geography*, 1950, 1956
B.S., M.S., University of North Carolina.
- BAILEY, ROBERT EDWARD. *Assistant Professor of Foundations of Education*, 1965
B.S., Florida Southern College; M.Ed., University of Florida.
- BAKER, J. MARSHALL. *Professor of Chemistry*, 1957, 1965
B.S., Missouri Valley College; M.S., Ohio State University; Ph.D., University of Missouri.
- BAKER, MAURICE F. *Professor of Zoology-Entomology*, 1958
B.S., M.S., Iowa State University; Ph.D., University of Kansas.
- BAKER, RICHARD ALBERT. *Assistant Professor of Vocational, Technical and Practical Arts Education*, 1963, 1964
B.S., M.S., Auburn University; Ed.D., Oklahoma State University.
- BALL, EUGENE S. *Instructor in Mathematics*, 1966
B.S., M.S., Louisiana Polytechnic Institute.
- BALL, RICHARD WILLIAM. *Professor of Mathematics*, 1954, 1960
B.A., M.A., Ph.D., University of Illinois.
- BARBAY, ARTHUR E. *Instructor in Economics and Business Administration*, 1965
B.S., M.B.A., Auburn University.
- BARBEROUSSE, ELEANOR H. *Coordinator of Counseling, Student Counseling Service and Assistant Professor, Education*, 1964, 1966
B.S., Louisiana Polytechnic Institute; M.S., Louisiana State University; Ed.S., Ed.D., Auburn University.
- BARBEROUSSE, EUELL. *Instructor in Elementary Education*, 1964
B.S., Louisiana Polytechnic Institute; M.E., Louisiana State University; Ed.D., Auburn University.
- BARBIN, ALLEN RAY. *Associate Professor of Mechanical Engineering*, 1961
B.S.M.E., Lamar State College of Technology; M.S.M.E., Texas A. & M. University; Ph.D., Purdue University.
- BARGER, JAMES S. *Assistant Professor of Aerospace Studies, Air Force ROTC*, 1966
B.A., The Citadel; Capt. U.S. Air Force.
- BARKSDALE, JELKS. *Associate Professor of Chemistry*, 1946, 1957
B.S., M.S., University of Alabama; Ph.D., Columbia University.
- BARKSDALE, ROBBIE ANDREWS. *Serials Cataloger and Assistant Professor*, 1949, 1965
A.B., Alabama College; B.S., M.S., Columbia University.

* Temporary.

- BARLOW, JEWEL B. Assistant Professor of Aerospace Engineering, 1964, 1966
B.S.E.P., M.S.A.E., Auburn University.
- BARRINGTON, WILLIAM NORMAN Instructor in Health, Physical
B.S., Auburn University; M.S., Peabody College. Education and Recreation, 1963
- BASKERVILL, MARGARET M. Associate Professor of Mathematics, 1943, 1965
A.B., Randolph-Macon Women's College; M.A., University of Michigan; Ph.D., Auburn University.
- BASS, MAX H. Assistant Professor of Zoology-Entomology, 1957, 1963
B.S., Troy State College; M.S., Ph.D., Auburn University.
- BEALL, GEORGE S. Assistant Professor of Aerospace Studies
B.S., University of Georgia; Capt., U.S. Air Force. Air Force ROTC, 1966
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- *FREEMAN, THOMAS J. *Instructor of Secondary Education*, 1965
B.S., Jacksonville State University; M.A., Auburn University.
- *FRENCH, FRANCES C. *Instructor in Sociology*, 1960
B.A., M.S., Louisiana State University.
- FRENCH, JOHN D. *Associate Professor of Physics*, 1958, 1963
B.S., M.S., Ph.D., Louisiana State University.
- FRISBY, CARL E. *Assistant Professor of Economics and Business Administration*, 1953, 1957
B.S., M.S., Auburn University.
- FROMHOLD, A. T., JR. *Associate Research Professor of Physics*, 1965
B.S., M.S., Auburn University; Ph.D., Cornell University.
- FUGLER, CHARLES MCGHEE *Instructor in Foreign Languages*, 1965
B.S., Tulane University; M.S., Louisiana State University; Ph.D., Auburn University.
- FUNDERBURK, HENRY H., JR. *Alumni Associate Professor of Botany and Plant Pathology*, 1961, 1966
B.S., M.S., Auburn University; Ph.D., Louisiana State University.
- GAGE, ERROL DEAN *Research Assistant, Scott Research Fund (VM)*
D.V.M., Texas A. & M. University. *Auburn Research Foundation*, 1966
- GARBER, MEYER *Assistant Professor of Aerospace Studies*
Air Force ROTC, 1966
B.S., Duke University; M.B.A., Ohio State University; Captain, U.S. Air Force.
- GARMON, LUCILLE B. *Assistant Professor and Research Associate of Physics*, 1966
B.S., M.S., University of Richmond; Ph.D., University of Virginia.
- GEIGER, GRADY EUGENE *Head, Circulation Division and Assistant Professor (Library)*, 1960, 1963
B.S., Auburn University; A.M.L.S., University of Michigan.
- *GEYER, CAROLYN K. *Instructor of English*, 1965
B.A., Augustana College; M.A., Auburn University.
- GIBBONS, WALTER J. *Professor of Large Animal Surgery and Medicine*, 1947, 1955
D.V.M., M.S., Cornell University.
- GILL, WILLIAM ROBERT *Research Lecturer in Agricultural Engineering*, 1957
B.S., Pennsylvania State University; M.S., University of Hawaii; Ph.D., Cornell University.
- GILLILAND, FLOYD R., JR. *Assistant Professor of Zoology-Entomology*, 1967
B.S., Arkansas Polytechnic College; M.S., University of Arkansas; Ph.D., Mississippi State University.
- GINGLES, WILLIAM SAMUEL *Instructor in Learning Resources*, 1966
B.F.A., Auburn University.

- GLOVER, ROBERT S. *Assistant Professor of Agricultural Economics*, 1965
B.S., Austin Peay State College; M.S., Auburn University; Ph.D., Texas A. & M. University.
- GLYDE, EDGAR C. *Professor of Music*, 1946, 1957
F.T.C.L., L.Mus.T.C.L., L.R.A.M., L.T.C.L. (London, England).
- GOLDEN, JOE PERRY *Instructor in Electrical Engineering*, 1966
B.S., M.S., Mississippi State University.
- GOODMAN, JOHN G. *Associate Professor of Poultry Science*, 1939, 1946
B.S., M.S., Auburn University.
- GOOLSBY, HYRON C. *Assistant Professor of Industrial Laboratories*, 1953, 1958
B.S., M.Ed., Auburn University.
- GOSLIN, WILLIAM E. *Assistant Professor of Botany and Plant Pathology*, 1959
B.S., M.S., Ph.D., Ohio State University.
- *GOSSER, HARVEY S. *Instructor of Pathology and Parasitology*, 1965
D.V.M., Auburn University.
- GOSSER, LEO G. *Professor of English*, 1927, 1933
B.S., Kirksville State College; Ph.D., University of Chicago.
- GRAF, EDWARD RAYMOND *Professor of Electrical Engineering*, 1957, 1965
B.E.E., M.E.E., Auburn University; Ph.D., Technische Hochschule, Stuttgart.
- GRAVES, RICHARD L. *Assistant Professor of Secondary Education*, 1965
B.A., Baylor University; M.Ed., University of Florida.
- GRAY, JOHN W. *Assistant Professor of Speech*, 1959, 1963
B.A., Ouachita University; M.A., University of Arkansas.
- GREENE, ELAINE G. *Instructor in Elementary Education*, 1966
B.S., M.Ed., Auburn University.
- *GREENE, GEORGE N. *Assistant Professor of Zoology-Entomology*, 1964
B.A., Rice University; M.S., University of Michigan; Ph.D., Auburn University.
- GREENE, JAMES ETHRIDGE *Dean, Veterinary Medicine*, 1937, 1958
D.V.M., M.S., Auburn University.
- GRITZ, IRVIN B. *Associate Professor of Economics and Business Administration*, 1931, 1946
B.S., M.S., Oklahoma State University.
- GROSECLOSE, FRANK F. *Professor of Mechanical and Industrial Engineering (P.E.)*, 1966
B.S., M.S., Virginia Polytechnic Institute.
- GROTH, AARON H., JR. *Head Professor of Pathology and Parasitology*, 1957, 1964
B.S., D.V.M., Auburn University; M.S., Iowa State University.
- GUDAUSKAS, ROBERT T. *Associate Professor of Botany and Plant Pathology*, 1960, 1963
B.S., Eastern Illinois University; M.S., Ph.D., University of Illinois.
- GUENTHER, JUDITH M. *Research Associate, Anatomy-Histology*, 1966
B.A., University of Illinois; M.S., Medical College of Georgia.
- GUENTHER, RAYMOND R. *Assistant Professor of Mathematics*, 1966
B.S., M.S., Ph.D., Iowa State University.
- HAINES, PAUL *Professor of English*, 1947, 1952
B.S., Lafayette College; M.A., Ohio Wesleyan University; Ph.D., New York University.
- HALE, DENNIS P. *Associate Professor of Economics and Business Administration*, 1957, 1965
B.S., Middle Tennessee State College; M.A., Peabody College.
- HALE, FRANCES W. *Assistant Professor of Secretarial Administration*, 1956, 1959
B.S., Troy State College; M.A., Peabody College.
- HALL, DAVID M. *Associate Professor of Textile Technology*, 1965
B.T.C., Auburn University; M.S.T.C., Clemson University; Ph.D., Victoria University (England).
- HAMILTON, JOHN WARD *Associate Professor, Foreign Languages*, 1956
A.A., B.A., M.A., University of Florida; Doctor en fil. y let., University de Salamanca (Spain).
- *HAMMETT, MICHAEL E. *Assistant Professor of Mathematics*, 1965
B.S., Furman University; M.S., Auburn University.
- *HAMMETT, ROBERT EDGAR *Instructor in Chemical Engineering*, 1962, 1964
B.Ch.E., University of Delaware; M.S., Auburn University.

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B.B.A., Tulane University; Lieutenant Commander, U.S. Navy.
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B.S., Brigham Young University; Captain, U.S. Air Force. Air Force ROTC, 1965
- HARGREAVES, GEORGE W. _____ Professor of Pharmacy, 1926, 1950
B.S., M.S., Ph.C., University of Nebraska.
- HARLAN, GRADY E. _____ Associate Professor of Education and Student
Counseling Service, Counselor Education, 1965
B.S., M.S., Western New Mexico University; Ph.D., State University of Iowa.
- HARLAN, RICHARD S. _____ Assistant Professor of Physics, 1959
B.S., U.S. Naval Academy.
- HARMON, GRADY R. _____ Assistant Professor of Mechanical Engineering, 1963, 1965
B.E.P., M.S., Auburn University.
- HARPER, JANIS CLEMENTS _____ Instructor in Art, 1965
B.S., University of Alabama; M.A., Auburn University.
- HARRIS, HUBERT _____ Associate Professor of Horticulture, 1936, 1963
B.S., M.S., Auburn University.
- HARRIS, RALPH R. _____ Associate Professor of Animal Science, 1960, 1963
B.S., M.S., Auburn University; Ph.D., Texas A. & M. University.
- HARRISON, JOSEPH H., JR. _____ Associate Professor of History and
Political Science, 1950, 1966
B.A., M.A., Ph.D., University of Virginia.
- HARTFORD, DONALD LEROY _____ Computer Scientist, Computer Center
Associate Professor of Industrial Engineering, 1966
B.A., M.A., Ed.D., University of Kentucky.
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Administration, 1958, 1963
B.S., High Point College; M.S., University of North Carolina; M.B.A., University of Texas;
C.P.A. (North Carolina); C.L.U., American College of Life Underwriters; C.P.C.U., American
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B.S., M.A., Ph.D., University of Wisconsin.
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B.S., University of Alabama; M.S., Ph.D., California Institute of Technology.
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A.A., Northwestern Michigan College; B.A., M.A., Michigan State University; M.F.A., University
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- HAYES, ALLEN PAGE _____ Assistant Professor of Elementary Education, 1966
B.S., M.A., University of Alabama.
- HAYLEY, LEE R. _____ Assistant Football Coach, 1963
B.S., M.S., Auburn University.
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B.S., M.S., Auburn University; Ph.D., University of Michigan.
- HEARN, RONALD B. _____ Instructor in English, 1960, 1964
B.A., Baylor University; M.A., Emory University.
- HEATH, MCKENZIE _____ Professor of Small Animal Surgery and Medicine, 1952, 1955
D.V.M., Auburn University.
- HELMKE, HENRY C. _____ Assistant Professor of Foreign Languages, 1959, 1963
B.A., M.A., Duke University.
- HENDERSON, CLAIRANNE _____ Instructor in Speech, 1966
B.A., College of St. Francis; M.A., Bowling Green University (Ohio).
- HENDERSON, MALCOLM R. _____ Professor of Economics and Business
Administration, 1966
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B.I.M., Auburn University; M.S.I.M., Georgia Institute of Technology; Ph.D., University of Alabama.
- HENSON, CURTIS T., JR. *Assistant Professor of History*, 1966
B.S., M.A., Auburn University; Ph.D., Tulane University.
- HERMANSON, RONALD E. *Assistant Professor of Agricultural Engineering (P.E.)*, 1966
B.S., M.S., Ph.D., Iowa State University.
- HERNDON, FRANK M. *Professor of Education*, 1962
A.B., Bowling Green College of Commerce; M.B.A., University of Mississippi; Ed.D., Northwestern University.
- HERRING, BRUCE E. *Assistant Professor of Industrial Engineering (P.E.)*, 1965
B.I.E., Ohio State University; M.S.M.E., New Mexico State University.
- HICKMAN, CHARLES E. *Associate Professor of Electrical Engineering*, 1966
B.S.E.E., M.S.E.E., Ph.D., University of Tennessee.
- HIERS, CHARLES J. *Assistant Professor of Art*, 1965
B.A.A., M.F.A., Auburn University.
- HILBURN, JOHN LAYMAN *Instructor in Electrical Engineering*, 1966
B.E.P., M.S.E.E., Auburn University.
- HILL, A. J. *Associate Professor and Assistant Business Manager*, 1948, 1965
B.S., Auburn University; M.B.A., Northwestern University.
- HILL, FRANKLIN C. *Instructor in Health, Physical Education and Recreation*, 1966
A.B., University of South Carolina; M.S., Florida State University.
- HILL, SHARON M. *Instructor of Learning Resources*, 1963, 1965
B.I.D., Auburn University.
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B.S., Cornell University; M.S., Iowa State University; Ph.D., Cornell University.
- HILTON, SHARON E. *Assistant Professor of Home Economics*, 1966
B.S., Georgia Southern College; M.Ed., University of Georgia.
- HINTON, MARJORIE J. *Assistant Professor of Home Economics*, 1963
B.S., University of Alabama; M.S., Auburn University.
- HINTON, WILBUR *Professor, Band Director, Music*, 1956, 1959
B.M., M.A., Ed.D., University of Alabama.
- HIRTH, LEO J. *Associate Professor of Chemical Engineering*, 1962
B.S., College of City of New York; M.S., Ph.D., University of Texas.
- HITCHCOCK, BERT, JR. *Instructor in English*, 1966
B.A., Auburn University; M.A., University of Oregon.
- HOCKING, GEORGE M. *Professor of Pharmacognosy*, 1951
B.S.P., University of Washington; M.S.P., Ph.D., University of Florida.
- HODCKINS, EARL J. *Professor of Forestry*, 1952, 1957
B.S., Michigan State University; M.S., University of California; Ph.D., Michigan State University.
- HODSON, NORMA S. GAUKER *Research Professor of Home Economics*, 1964
B.S., Butler University; M.S., Ph.D., Florida State University.
- HOERLE, JAMES R. *Assistant Professor of Aerospace Studies*
B.S., United States Naval Academy; Captain, U.S. Air Force. *Air Force ROTC*, 1966
- HOERLEIN, BENJAMIN F. *Alumni Head Professor of Small Animal Surgery*, 1947, 1958
D.V.M., Colorado State University; Ph.D., Cornell University.
- HOFF, EDWIN J. *Associate Professor of Pathology and Parasitology*, 1962
D.V.M., Cornell University; M.S., University of Pennsylvania.
- HOFFMAN, LUCY KAY *Instructor in Home Economics*, 1966
B.S., Ohio State University; M.S., University of North Carolina.
- HOLLAND, BEN J. *Assistant Professor of Drama*, 1966
B.A., M.A., Harding College; M.A., University of Southern California.
- HOLLAWAY, OTTO *Professor of Education*, 1945, 1953
B.S., M.S., Auburn University; Ed.D., Teachers College, Columbia University.

- HOLLOWAY, CLARKE L.**.....Associate Professor of Anatomy and
D.V.M., M.S., Auburn University. Histology, 1960, 1965
- HOLMES, CHARLES H.**.....Head Professor of Electrical Engineering, 1957, 1966
B.E.E., Auburn University; M.E.E., Brooklyn Polytechnic Institute; Ph.D., Stanford University.
- HONNELL, MARTIAL ALFRED**.....Professor of Electrical Engineering (P.E.), 1958
B.S.E.E., M.S.E.E., E.E., Georgia Institute of Technology.
- HONOUR, FRANCES M.**.....Gift and Exchange Librarian and Instructor, 1955, 1965
B.A., Tennessee Polytechnic Institute; M.A., Auburn University; M.S., Southern California University.
- HOOD, JOSEPH T.**.....Professor of Agronomy and Soils, 1949, 1959
B.S., University of Georgia; M.S., Purdue University; Ph.D., Cornell University.
- HOOL, JAMES N.**.....Assistant Professor of Industrial Engineering, 1965
B.S., M.S., Ph.D., Purdue University.
- HORNE, ROBERT D.**.....Associate Professor of Small Animal Surgery
D.V.M., M.S., Auburn University. and Medicine, 1959, 1963
- HORTON, JOSEPH L.**.....Instructor in Physics, 1966
B.A., Indiana State University; M.S.T., Illinois Wesleyan University.
- HORTON, JOYCE F.**.....Instructor in Speech, 1965
B.S., Troy State College; M.A., Auburn University.
- HOVELAND, CARL S.**.....Associate Professor of Agronomy and Soils, 1959
B.S., M.S., University of Wisconsin; Ph.D., University of Florida.
- *HOWARD, EZRA C.**.....Instructor in Mathematics, 1964
B.S., U.S. Naval Academy.
- HOWES, J. R.**.....Associate Professor of Poultry Science, 1960, 1963
B.Sc., University of London; N.D.A., University of Edinburgh; M.Sc., McGill University; Ph.D., University of Florida.
- HSU, CHENG-TEH**.....Professor of Chemical Engineering, 1953, 1962
B.S.C., University of Nanking; M.S., University of Wisconsin; Ph.D., University of Pennsylvania
- HUDSON, FRED M.**.....Professor of Civil Engineering (P.E.), 1947, 1961
B.S.C.E., Purdue University; M.S., Princeton University.
- *HUDSON, MURRAY FRANKLIN**.....Instructor in English, 1965
B.A., University of Arizona; M.A., University of Virginia.
- HUDSON, SARA CARRUTH**.....Assistant Professor of English, 1952, 1958
A.B., University of North Carolina; M.A., Ph.D., University of Chicago.
- HUFFMAN, DALE L.**.....Associate Professor of Animal Science, 1963, 1965
B.S., Cornell University; M.S., Ph.D., University of Florida.
- HUGHES, GORDON**.....Professor of Physics, 1933, 1946
B.A., Oberlin College; M.A., Ph.D., University of Illinois.
- HUNTER, A. GENE**.....Instructor in Forestry, 1966
B.S., Louisiana Polytechnic Institute; M.S., Auburn University.
- HUTCHINSON, EDWARD C.**.....Associate Professor of Speech, 1963
B.A., Hiram College; M.A., Kent State University; Ph.D., Ohio State University.
- HYCHE, LACY LEONARD**.....Associate Professor of Zoology-Entomology, 1952, 1960
B.S., M.S., Auburn University.
- IKENBERRY, ERNEST**.....Research Professor of Mathematics, 1950, 1956
A.B., Ottawa University; M.A., University of Kansas; Ph.D., Louisiana State University.
- INGRAM, FORNEY H.**.....Associate Professor of Engineering
B.S.C.E., M.C.E., Auburn University. Graphics (P.E.), 1927, 1963
- IRVINE, LAVERNE F.**.....Associate Professor of Psychology, 1965
B.M., B.A., Louisiana Polytechnic Institute; M.A., Ph.D., Stanford University.
- ISEMONGER, PERCY L.**.....Instructor of Foreign Languages, 1965
B.A., Florida State University; M.A., University of Alabama; Diploma, University of Marburg.
- IVEY, OLIVER T.**.....Professor of History and Political Science, 1928, 1963
B.S., M.S., Auburn University; M.A., University of Chicago.
- IVEY, WILLIAM D.**.....Associate Professor of Zoology-Entomology, 1947, 1961
B.S., M.S., Auburn University; Ph.D., Emory University.

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D.V.M., M.S., Auburn University.
- JAMES, SIDNEY N. *Assistant Professor of Electrical Engineering*, 1966
B.S.E.E., M.S.E.E., University of Alabama.
- JEMIAN, WARTAN A. *Professor of Mechanical Engineering (P.E.)*, 1962, 1965
B.S.Ch., University of Maryland; M.S., Ph.D., Metallurgical Engineering, Rensselaer Polytechnic Institute.
- JENKINS, RALPH H., JR. *Instructor in Economics and Business Administration*, 1966
B.B.C., Auburn University; M.A., University of Alabama.
- JENSEN, OVE WILLIAM *Assistant Professor of Elementary Education*, 1966
B.M., M.M., Ed.D., University of Miami.
- JOHNSON, ALBERT S. III *Instructor of Zoology and Entomology*, 1963, 1965
B.S., University of Georgia; M.S., Auburn University.
- JOHNSON, EVERT W. *Associate Professor of Forestry*, 1950, 1957
B.S., University of New Hampshire; M.F., Yale University; Ph.D., Syracuse University.
- JOHNSON, MARY ANN M. *Catalog Librarian and Instructor, Library*, 1965
- JOHNSON, SIDNEY W. *Associate Professor of History and Political Science*, 1925, 1941
B.S., M.S., Auburn University.
- JOHNSON, WILEY C., JR. *Associate Professor of Agronomy and Soils*, 1957
B.S., Wake Forest College; B.S., M.S., North Carolina State University; Ph.D., Cornell University.
- JONES, ALLEN WOODROW *Assistant Professor of History and Political Science*, 1966
B.S., M.A., Auburn University; Ph.D., University of Alabama.
- JONES, EDWARD O., JR. *Professor and Assistant Head Professor, Mechanical Engineering (P.E.)*, 1946, 1965
B.M.E., B.E.E., Auburn University; M.S., University of Illinois.
- JONES, MADISON P., JR. *Associate Professor of English*, 1956, 1963
A.B., Vanderbilt University; M.A., University of Florida.
- JONES, SAM T. *Associate Professor of Horticulture*, 1950, 1954
B.S., M.S., Auburn University; Ph.D., Louisiana State University.
- JORDAN, J. RALPH *Head Football Coach and Assistant Director of Athletics*, 1932, 1951
B.S., Auburn University.
- JORDAN, ROLAND C. *Assistant Professor of Music*, 1966
B.M., University of Houston; M.M., University of Pennsylvania.
- JUSTICE, ERNEST *Associate Professor of Secondary Education*, 1960, 1963
B.M.E., Kansas State Teachers College; M.S., Ph.D., University of Wisconsin.
- *JUSTICE, MARY E. *Instructor of Elementary Education*, 1960
B.M.E., Kansas State Teachers College.
- KAPF, JOHN *Assistant Professor of Architecture*, 1966
B.of Arch., M.of Arch., University of Illinois.
- KELLEY, ROGER LEE *Assistant Professor of Psychology*, 1960
A.B., University of Chicago.
- KENT, MARY L. *Instructor in Physical Education*, 1966
B.A., Judson College; M.S., Baylor University.
- KERN, EDWARD E., JR. *Professor of Economics and Business Administration*, 1955, 1966
B.S., M.S., Louisiana State University; Ph.D., University of Kentucky.
- *KETTUNEN, MARIETTA *Associate Professor of Art*, 1954, 1957
B.A.E., Art Institute of Chicago; Studied Parsons, New York Art Students League, New York School of Fine and Applied Arts.
- KINCEY, TRULY ELIZABETH *Associate Professor of Economics and Business Administration*, 1957, 1960
A.B., Alabama College; M.A., Tulane University; Ph.D., Ohio State University.
- KING, C. C., JR. *Assistant Professor of Agronomy and Soils*, 1952, 1954
B.S., M.S., Auburn University.
- KITELY, GARY W. *Assistant Professor of Aerospace Engineering*, 1965
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B.M.E., Ohio State University.
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- KNAPP, WILLIAM C. *Assistant Professor of Aerospace Studies*,
B.S., Auburn University; Lt. Col., USAF. *Air Force ROTC*, 1963
- KNIGHT, W. CHARLES *Professor of Textile Engineering*, 1946, 1961
B.T.E., Auburn University; M.S.T.E., Georgia Institute of Technology.
- KNOWLES, ROBERT *Associate Professor of Drama*, 1951, 1962
B.A., Stetson University; M.A., University of Florida.
- KOCHHAR, MAN MOHAN *Assistant Professor of Pharmacy*, 1964
B.S., Amritsar Medical College, India; M.S., Ph.D., University of Texas.
- KOELLING, ALFRED C. *Assistant Professor of Botany and Plant Pathology*, 1964
B.S., University of Illinois; M.S., Pennsylvania State College; M.S., Ph.D., University of Illinois.
- KOENIG, RODNEY C. *Assistant Professor of Naval Science*, 1965
B.A., University of Texas, Lieutenant, U.S. Navy.
- KOSOLAPOFF, GENNADY M. *Research Professor of Chemistry*, 1948, 1953
B.S., Ch.E., Cooper Union; M.S., Sc.D., University of Michigan.
- KRIBS, ANNA E. *Social Science Bibliographer and Instructor (Library)*, 1961, 1962
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B.S.M.E., M.S., Auburn University.
- LAIR, CHARLES V. *Associate Professor of Psychology*, 1966
B.A., M.A., University of Missouri; Ph.D., Vanderbilt University.
- LAMAR, MARY GEORGE *Associate Professor of Secretarial Administration*, 1933, 1963
B.S., Auburn University; M.A., New York University.
- LAND, JAMES E. *Research Professor of Chemistry*, 1938, 1966
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- LAND, JEANNETTA T. *Professor of Health, Physical Education and Recreation*, 1941, 1943
B.S., University of Alabama; M.A., Columbia University.
- LARIMORE, WILLIAM H. *Assistant Professor of Aerospace Studies*,
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- LARSEN, HARRY S. *Assistant Professor of Forestry*, 1959
B.S., Rutgers University; M.S., Michigan State University; Ph.D., Duke University.
- LATIMER, PAUL H. *Associate Professor of Physics*, 1962
B.S., Northwestern University; M.S., Ph.D., University of Illinois.
- LAUDERDALE, WILLIAM B. *Assistant Professor of Foundations of Education*, 1964
B.S., Ed.M., University of Illinois.
- LAVORE, ROMAN *Instructor, Music*, 1966
B.Mus., M.S., Julliard School of Music.
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B.A., Huntingdon College; M.S., Auburn University.
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B.S., Florence State College.
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- LEIGH, GERALD M. *Associate Professor of Civil Engineering*, 1961, 1964
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B.Arch., University of Pennsylvania.
- LEWIS, DONALD ADDISON *Instructor in Foreign Languages*, 1966
B.A., Vanderbilt University; M.A., University of Florida.
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B.S., University of Southern Mississippi; M.A., M.S., Auburn University.
- LIKINS, FLOYD L., JR. *Assistant Professor of Military Science, Army ROTC*, 1966
B.S., University of Southern Mississippi; Captain, U.S. Army.
- LITTLE, ALTON S. *Associate Professor of Engineering Graphics (P.E.)*, 1947, 1955
B.C.E., Auburn University; M.S.C.E., Georgia Institute of Technology.
- LITTLETON, TAYLOR D. *Assistant Dean of Graduate School;*
B.S., M.A., Ph.D., Florida State University. *Associate Professor, English*, 1957, 1964
- LIVERMAN, JOHN H. *Professor of Music*, 1945, 1966
B.S., M.A., Columbia University.
- LOGUE, HANCHEY E., JR. *Instructor in Journalism*, 1964
B.S., Auburn University.
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B.S.S., Loyola University of South; M.A., Louisiana State University.
- LORENDO, EUGENE L. *Assistant Football Coach*, 1951
B.S., University of Georgia.
- LORENDO, JANE C. *Assistant Professor of Home Economics*, 1956, 1966
B.S., University of Minnesota; M.S., Auburn University.
- LOVELL, JOHN T. *Alumni Professor of Educational Administration*, 1956, 1964
B.A., M.A., Peabody College; D.Ed., University of Florida.
- LOWRY, JAMES LEE *Professor of Electrical Engineering*, 1955, 1965
B.E.E., M.E.E., Auburn University; Ph.D., University of Florida.
- LYLE, JAMES A. *Head of Department, Botany and Plant Pathology*, 1947, 1954
B.S., University of Kentucky; M.S., North Carolina State University; Ph.D., University of Minnesota.
- LYNN, WILLIAM J. *Head Basketball Coach*, 1951, 1963
B.S., Auburn University.
- MAGHSOODLOO, SAEED *Instructor in Industrial Engineering*, 1966
B.S., M.S., Auburn University.
- *MANTEL, MARGIE *Instructor in Zoology-Entomology*, 1964
B.S., Auburn University; M.S., University of Michigan.
- MAPLES, GLENNON *Assistant Professor of Mechanical Engineering*, 1966
B.S., M.S., Mississippi State University; Ph.D., Oklahoma State University.
- MARSHALL, NORTON L. *Professor of Botany and Plant Pathology*, 1958, 1966
B.S., Pennsylvania State University; M.S., Ph.D., University of Maryland.
- MARSHALL, ROBERT B. *Commandant and Professor of Military Science*, 1965
B.S., Clemson University; Colonel, U.S. Army.
- **MARTIN, FRED WILLIAM *Professor of Aerospace Engineering (P.E.)*, 1956
B.S.A.E., M.S., Virginia Polytechnic Institute.
- MARTIN, WILLIS C., JR. *Instructor in Horticulture*, 1951, 1958
B.S., Auburn University.
- MARTINCIC, ALBERT FRANK *Assistant Professor of Health, Physical*
B.S., M.A., University of Iowa. *Education and Recreation*, 1948, 1953
- MARTY, EDWARD C. *Professor of Building Technology*, 1939, 1957
B.Arch., M.Arch., Auburn University.
- MASON, WILLIAM HICKMON *Assistant Professor of Zoology-Entomology*, 1966
B.S., Arkansas Polytechnic College; M.Ed., Ed.D., University of Georgia.
- MAYNOR, HAL WHARTON, JR. *Professor of Mechanical Engineering (P.E.)*, 1959
B.S., M.S., D. of Engr., University of Kentucky.
- MCCANN, ESTHER N. *Catalog Librarian and Instructor*, 1955, 1964
B.S., Indiana State College; B.S.L.S., University of Denver.

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- McCANN, FRANKLIN T. _____ *Professor of English*, 1947, 1953
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- McCLUNG, JAMES D. _____ *Associate Professor of Engineering Graphics*, 1941, 1946
B.S., Ed.M., University of Oklahoma.
- *McCUE, JOHN F. _____ *Research Associate of Pathology and Parasitology*, 1965
B.S., St. John's University; M.S., Ph.D., Notre Dame University.
- McDANIEL, DOROTHY S. _____ *Instructor in Sociology*, 1966
B.A., Auburn University.
- McINTYRE, SHERWOOD C. _____ *Professor of Psychology*, 1948
B.A., B.Sc., M.A., Ph.D., Ohio State University.
- *McKINNEY, JAMES MICHAEL _____ *Instructor in Mechanical Engineering*, 1965, 1966
B.M.E., M.S., Auburn University.
- McKOWN, DELOS BANNING _____ *Assistant Professor of Philosophy*, 1962
B.A., Alma College; B.D., College of the Bible (Kentucky); M.A., University of Kentucky; Diploma, University of Geneva (Switzerland).
- McLEOD, FRANCES R. _____ *Assistant Professor of English*, 1945, 1955
A.B., Huntingdon College; M.S., Auburn University.
- McMATH, J. B., JR. _____ *Assistant Professor of Naval Science*, 1965
B.S., University of South Carolina; Lt. Col., U.S. Marine Corps.
- McMILLAN, MALCOLM COOK _____ *Head Professor of History and Political Science*, 1948, 1964
A.B., M.A., University of Alabama; Ph.D., University of North Carolina.
- McMINN, WILLIAM G. _____ *Head, Architecture*, 1963, 1965
B.A., B.S.Arch., Rice University; M.Arch., University of Texas.
- McMURTRY, THOMAS EDWARD _____ *Assistant Professor of Industrial Laboratories*, 1959, 1963
B.S., M.Ed., Auburn University.
- McNORTON, CLAUDE _____ *Assistant Professor of History and Political Science*, 1946, 1949
A.B., University of Alabama; M.S., Louisiana State University; M.A., New York University.
- MEANS, RICHARD K. _____ *Professor of Health, Physical Education and Recreation*, 1964
B.S., M.A., University of Minnesota; Ed.D., University of California, Los Angeles.
- MELIUS, PAUL _____ *Professor of Chemistry*, 1957, 1965
B.S., Bradley University; M.S., University of Chicago; Ph.D., Loyola University of Chicago.
- MELZER, JOHN HENRY _____ *Professor of Philosophy*, 1958
A.M., Ph.D., Vanderbilt University.
- METZ, GENE ALAN _____ *Associate Professor of Civil Engineering*, 1960, 1963
B.S.C.E., M.S.C.E., University of Missouri; D.Sc., Washington University.
- METZGER, ABRAM B. _____ *Assistant Professor of History and Political Science*, 1937, 1947
B.B.A., University of Chattanooga; M.S., Auburn University.
- METZGER, JAMES C. _____ *Assistant Professor of Aerospace Studies, Air Force ROTC*, 1964
B.A., University of Colorado; Captain, U.S. Air Force.
- MICHAEL, MARION C. _____ *Assistant Professor of English*, 1965
A.B., University of Georgia; M.A., University of Virginia; Ph.D., University of Georgia.
- MILES, LOUISE WALTERS _____ *Assistant Professor of Education*, 1966
B.S., Jacksonville State University; M.A., George Peabody College.
- MILLER, BILL R. _____ *Assistant Professor of Agricultural Economics*, 1963
B.S., M.S., Auburn University; Ph.D., North Carolina State University.
- MILLER, HAMPTON _____ *Assistant Professor of Electrical Engineering*, 1938, 1946
B.S.E.E., Auburn University.
- *MILLER, W. R. _____ *Assistant Professor of Microbiology*, 1960, 1963
D.V.M., M.S., Auburn University.
- MIMS, THOMAS EARLY _____ *Assistant Professor of Art*, 1966
B.S., M.A., School of Art, East Carolina University.
- *MITCHELL, DOROTHY N. _____ *Instructor, Art*, 1960, 1965
B.A., Auburn University.
- MIZE, JOE H. _____ *Associate Professor of Industrial Engineering (P.E.)*, 1964, 1965
B.S.I.E., Texas Technological College; M.S.I.E., Ph.D., Purdue University.

- MOE, DAVID.....Instructor in Mathematics, 1966
B.A., M.A., Washington State University.
- MONEY, JAMES E.....Assistant Professor of Aerospace Studies, Air Force ROTC, 1963
B.S., Auburn University; Major, USAF.
- MONIN, THOMAS.....Intern, Large Animal Surgery and Medicine, 1965
D.V.M., Auburn University.
- MONTGOMERY, R. W.....Head Professor of Vocational Technical, and
Practical Arts Education, 1940, 1963
B.S., M.S., Auburn University; Ph.D., Ohio State University.
- MOON, WILLIAM HAROLD.....Assistant Professor of Psychology, 1956, 1964
B.S., Auburn University; Ph.D., Florida State University.
- MOONEY, ROBERT J.....Instructor in Drama, 1966
B.A., St. Thomas College; M.A., North Dakota State University.
- MOORE, B. G.....Instructor in Microbiology, 1965
B.S., M.S., Mississippi State University.
- MOORE, CLAUDE H.....Head of Department, Poultry Science, 1956, 1959
B.S., Auburn University; M.S. Kansas State University; Ph.D., Purdue University.
- MOORE, JOHN RICHARD.....Professor Emeritus of English, 1964
A.B., Tulane University; A.M., Ph.D., Harvard University.
- MOORE, JOSEPH C.....Assistant Professor of Horticulture, 1938, 1947
B.S., Auburn University; M.S., Washington University.
- *MOORE, MARY VIRGINIA.....Assistant Professor of Speech, 1956, 1964
A.B., Valdosta State College; M.S., Purdue University.
- MOORE, OMAR C.....Associate Professor of Chemical Engineering, 1931, 1953
B.S., M.S., Auburn University.
- MOORE, WAYNE THOMPSON.....Associate Professor of Music, 1964
A.B., Elon College; A.M., Ed.D., Columbia University.
- MORA, E. C.....Associate Professor of Poultry Science, 1958, 1961
B.S., University of New Mexico; M.S., New Mexico State University; Ph.D., Kansas State University.
- MORGAN, WILLIAM W.....Associate Professor of Industrial Engineering
(P.E.), 1954, 1965
B.B.A., University of Georgia; M.S.I.M., Georgia Institute of Technology.
- *MORRILL, MILLY F.....Instructor of Art, 1965
A.B., Smith College; M.A., Yale University.
- *MORRILL, OLIVE L.....Assistant Professor of Home Economics, 1960
B.S., Utah State University; M.S., Cornell University.
- MORRILL, RALPH K.....Associate Professor of Architecture, 1965
B.Arch., Massachusetts Institute of Technology; M.Arch., Yale University.
- MORROW, ANNE H.....Instructor in Speech, 1966
B.S., M.A., Auburn University.
- MORTON, SUE BRAKEBILL.....Assistant Professor of Home Economics, 1962
B.S., M.S., Ph.D., Texas Woman's University.
- MOUNT, ROBERT HUGHES.....Associate Professor of Zoology-Entomology, 1954, 1966
B.S., M.S., Auburn University; Ph.D., University of Florida.
- MOUNTCASTLE, WILLIAM R.....Assistant Professor of Chemistry, 1966
B.S., Ch.E., Georgia Institute of Technology; M.S., Ph.D., University of Alabama.
- MOWAT, JOHN G.....Associate Professor of Physics, 1957, 1964
B.S., M.S., Stanford University; Ph.D., University of Virginia.
- *MURPHY, JULIA HARRIS.....Instructor in Mathematics, 1963, 1965
B.S., M.S., Auburn University.
- MURRELL, DAVID WESTCOTT, JR.....Assistant Professor, Mathematics, 1966
B.S., M.A., University of Alabama.
- MYLES, WILLIAM R.....Associate Professor of Economics and
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B.S., M.A., University of Pittsburgh.
- NALE, LUTHER JACKSON.....Instructor in Electrical Engineering, 1966
B.S.E.E., Auburn University; M.S., University of Alabama.

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B.S., Kansas State University; M.S., University of Minnesota; Ph.D., University of Missouri.
- NEELY, W. C. *Assistant Professor of Chemistry*, 1966
B.S., Mississippi State University; M.S., Ph.D., Louisiana State University.
- NEWELL, ANNIE LAURA *Associate Professor of Education*, 1958, 1960
A.B., LaGrange College; M.S., Ed.D., Auburn University.
- NEWMAN, AUSTIN C., JR. *Associate Professor of Large Animal Surgery and Medicine*, 1966
B.S., D.V.M., Auburn University.
- *NEWMAN, MARY EMMA M. *Instructor in Mathematics*, 1942
B.S., M.S., Auburn University.
- NEWTON, MERLIN O. *Instructor in History and Political Science*, 1964
B.A., Huntingdon College; M.A., Tulane University.
- NEWTON, WESLEY P. *Assistant Professor of History and Political Science*, 1964
A.B., University of Missouri; M.A., Ph.D., University of Alabama.
- NICHOLS, GROVER T. *Associate Professor of Electrical Engineering (P.E.)*, 1947, 1950
B.E.E., Auburn University; M.S., Georgia Institute of Technology.
- NICHOLS, JAMES O. *Assistant Professor of Aerospace Engineering (P.E.)*, 1960
B.S.A.E., M.S.E., University of Alabama.
- NICHOLS, MARY L. *Research Lecturer, Agricultural Engineering*, 1917, 1957
B.S., Ohio State University; M.S., University of Delaware; D.Sc., Clemson University.
- NICHOLS, SAMUEL HARDING, JR. *Professor of Chemistry*, 1944, 1955
B.S., M.S., Ph.D., Ohio State University.
- NIST, JOHN A. *Professor of English*, 1966
A.B., DePauw University; M.A., Ph.D., Indiana University.
- NIX, GWENDOLYN B. *Instructor in Physical Education*, 1966
B.A., Troy State College.
- NIX, HILLARY GORDON *Instructor in Mechanical Engineering*, 1964, 1966
B.S.M.E., M.S.M.E., Auburn University.
- NIX, PAUL E. *Instructor and Head Baseball Coach*, 1963, 1964
B.S., Troy State College; M.Ed., Auburn University.
- NORTON, JOSEPH D. *Assistant Professor of Horticulture*, 1954, 1960
B.S., M.S., Auburn University; Ph.D., Louisiana State University.
- OLLIFF, DONATHON C. *Instructor in History and Political Science*, 1966
B.A., M.A., Auburn University.
- OPPENHEIMER, ERNEST A. *Director and Assistant Professor, Student Counseling Service*, 1964, 1966
B.A., Amherst College; M.B.A., New York University; Ph.D., Columbia University.
- ORR, FRANK MARION *Head Professor of Building Technology*, 1928, 1957
B.S., M.Arch., Auburn University.
- ORR, HENRY P. *Professor of Horticulture*, 1947, 1962
B.S., Auburn University; M.S., Ph.D., Ohio State University.
- OSWALT, LUTHER E. *Assistant Professor of Military Science*, 1965
B.S., Auburn University; Captain, U.S. Army.
- *OTTIS, CHARLOTTE *Instructor in Education*, 1959
A.B., Dakota Wesleyan University; M.A., University of Wisconsin.
- OTTIS, KENNETH *Professor of Zoology-Entomology*, 1953, 1963
B.S., Dakota Wesleyan University; M.S., Ph.D., Iowa State University.
- OWSLEY, FRANK L., JR. *Associate Professor of History and Political Science*, 1960, 1966
A.B., Vanderbilt University; M.A., Ph.D., University of Alabama.
- PARKER, WILLIAM V. *Dean, Graduate School; Professor of Mathematics*, 1950, 1953
A.B., M.A., University of North Carolina; Ph.D., Brown University.
- PARKS, PAUL F. *Associate Professor of Animal Science*, 1965
B.S., M.S., Auburn University; Ph.D., Texas A. & M. University.

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- PARTIN, ROBERT L. *Professor of History and Political Science*, 1937, 1947
B.S., Middle Tennessee State College; M.A., Ph.D., Peabody College
- PASTORETT, RICHARD T. *Head, Acquisitions Division and Assistant Professor*, 1965
B.S., Mt. St. Marys College; M.A.L.S., Florida State University.
- PASTORETT, TOMMA N. *Science Librarian and Instructor*, 1965
B.S., Mississippi State University; M.A.L.S., Florida State University.
- *PATERSON, DONALD PASCOE *Instructor in Economics and Business Administration*, 1964
B.S., M.B.A., Auburn University.
- PATRICK, WALTON R. *Head Professor of English*, 1946, 1947
B.S., Mississippi State University; M.A., Ph.D., Louisiana State University.
- *PATTERSON, LUCY ADELAIDE *Instructor in English*, 1961, 1963
A.B., University of Richmond; M.A., Auburn University.
- PATTERSON, RICHARD MCCARTHY *Associate Professor of Botany and Plant Pathology*, 1949, 1964
B.S., M.S., University of Florida; Ph.D., Pennsylvania State University.
- PATTERSON, TROY B. *Professor of Animal Science*, 1957, 1965
B.S., Mississippi State University; M.S., Ph.D., Texas A. & M. University.
- PEARSON, ALLEN M. *Professor of Zoology-Entomology*, 1937, 1957
B.S., Auburn University; M.S., Ph.D., Iowa State University.
- PEARSON, ROBERT WATTS *Research Lecturer in Agronomy and Soils*, 1941, 1960
B.S., M.S., Mississippi State University; Ph.D., University of Wisconsin.
- PEET, HELEN HANNA *Humanities Bibliographer and Instructor (Library)*, 1937, 1959
A.B., Mississippi State College for Women; M.A., Tulane University.
- PERKINS, DONALD YOUNG *Head, Horticulture*, 1966
B.S., M.S., Louisiana State University; Ph.D., Cornell University.
- PERRY, NORMAN C. *Professor of Mathematics*, 1953, 1961
A.B., University of California; M.A., Ph.D., University of Southern California.
- PERSONS, CAROLINE C. *Science Bibliographer and Instructor (Library)*, 1963
A.B., Mississippi State College for Women; B.S.L.S., Peabody College.
- PETERSON, CHARLES H. *Assistant Professor of Civil Engineering (P.E.)*, 1962
B.C.E., M.C.E., Auburn University.
- PETERSON, JOE G. *Associate Professor of Chemistry*, 1948, 1959
B.S., M.S., Auburn University.
- PFEIL, EVA *Associate Professor of Architecture*, 1961, 1965
B.I.D., M.V.C., Ulm Graduate School of Design; Certificate Psychology, University of Zurich.
- PHARIS, WILLIAM L., JR. *Head Professor of Education Administration and Supervision*, 1966
B.S., Georgia Southern College; M.A., George Peabody College; Ed.D., Columbia University.
- PHILLIPS, CHARLES L. *Professor of Electrical Engineering*, 1959, 1965
B.E.E., M.S.E.E., Ph.D., Georgia Institute of Technology.
- PHILLIPS, JOE *Assistant Professor of Textile Technology*, 1959, 1960
B.S.T.E., Auburn University.
- PHILLIPS, PHYLLIS P. *Assistant Professor of Speech*, 1963, 1967
B.S., M.Ed., Ed.D., Auburn University.
- PHILLIPS, RAY C. *Interim Head, Foundations of Education Coordinator of Laboratory Experiences*, 1961, 1966
B.S., Middle Tennessee University; M.A., George Peabody College; Ed.D., Auburn University.
- PICKARD, EDWARD EARL *Assistant Professor of Architecture*, 1965
B.M.Ed., Louisiana State University; B.S., B.Arch., Georgia Institute of Technology.
- PIERCE, TRUMAN M. *Dean, School of Education*, 1955
Ph.B., Piedmont College; M.A., University of Alabama; Ph.D., Columbia University.
- PITTS, ROBERT GILES *Head Professor of Aerospace Engineering (P.E.)*, 1935, 1944
B.A.E., Auburn University; M.S., California Institute of Technology.
- POE, JOHN E. *Serials Librarian and Instructor*, 1965
A.B., University of Georgia; M.Ln., Emory University.
- POPOVICS, SANDOR *Professor of Civil Engineering (P.E.)*, 1959
Diploma, Polytechnic University, Budapest; Candidate of Tech. Science, National Academy of Sciences, Budapest; Ph.D., Purdue University.

- PORTER, CHARLES R. _____ *Research Lecturer, Radiological Sciences*, 1966
B.S., M.S., Marshall College.
- *PORTER, DALE A. _____ *Research Lecturer, Zoology-Entomology*, 1954
A.B., Kalamazoo College; M.S., Kansas State University; Sc.D., Johns Hopkins University.
- POSEY, HENRY G. _____ *Associate Professor of Forestry*, 1950, 1959
B.S.F., M.S.F., North Carolina State University.
- POWELL, DAVID _____ *Instructor in Mathematics*, 1966
B.S., M.Ed., M.S., Auburn University.
- PRATHER, EDMUND ELLIS _____ *Associate Professor of Zoology-Entomology*, 1941, 1950
B.S., Auburn University; M.S., University of Michigan.
- PRATHER, ELIZABETH S. _____ *Associate Professor of Home Economics*, 1952, 1963
B.S., M.S., Auburn University; Ph.D., Iowa State University.
- PRICE, A. COOPER _____ *Professor of Counselor Education*, 1964, 1966
B.A., Furman University; M.A., Ph.D., University of Florida.
- *PRICE, ANN CANNON _____ *Instructor in Health, Physical Education and Recreation*, 1961
B.S., Alabama College.
- PRICE, EDWIN O. _____ *Professor of Chemistry*, 1946, 1957
A.B., University of Colorado; M.S., Ph.D., Ohio State University.
- *PRITCHARD, CAROLE C. _____ *Instructor in Microbiology*, 1965
D.V.M., Auburn University.
- PRUETT, ANN WATTERS _____ *Instructor in Health and Physical Education*, 1965
B.S., Pennsylvania State University; M.S., University of Florida.
- PRUETT, HERMAN T. _____ *Associate Professor of Vocational Technical,
and Practical Arts Education*, 1949, 1960
B.S., M.S., Auburn University.
- PUCKETT, JOHN RALPH _____ *Assistant Professor of Health, Physical
Education and Recreation*, 1966
B.S., East Tennessee State University; M.S., Ed.D., University of Tennessee.
- PUMPHREY, FRED H. _____ *Dean of Engineering and Director of
Engineering Experiment Station (P.E.)*, 1958
B.A., B.E.E., E.E., D.Sc. (Hon.), Ohio State University.
- PUNKE, HAROLD H. _____ *Professor of Education*, 1949
B.S., M.S., University of Illinois; Ph.D., University of Chicago.
- *RABBY, RUSSELL L. _____ *Instructor in Industrial Design*, 1965
B.I.D., Auburn University.
- RAINER, REX KELLY _____ *Associate Professor of Building Technology*, 1962, 1965
B.C.E., M.C.E., Auburn University.
- RAMEY, GEORGE E. _____ *Instructor in Civil Engineering*, 1965
B.S.C.E., M.S.C.E., Auburn University.
- RANNEY, J. BUCKMINSTER _____ *Professor of Speech; Head, Speech and
Hearing Clinic*, 1957, 1963
B.A., M.A., New York University; Ph.D., Ohio State University.
- RASH, JOE M. _____ *Associate Professor of Pharmacy*, 1948
B.S., Carson-Newman College; B.S., M.S., Auburn University.
- RAWLINS, JOSEPH T. _____ *Assistant Professor of Music*, 1965
B.M., M.Music, Louisiana State University.
- *RAY, JOHN ROBERT _____ *Assistant Professor of Physics*, 1964
B.S., Rose Polytechnic Institute; Ph.D., Ohio University.
- REA, ROBERT RIGHT _____ *Alumni Professor of History and Political Science*, 1950, 1961
A.B., University of Friends; M.A., Ph.D., Indiana University.
- REAGAN, HUGH D. _____ *Associate Professor of History and Political Science*, 1948, 1963
B.A., M.A., Emory University; Ph.D., University of Texas.
- REECE, JOE W. _____ *Assistant Professor of Mechanical Engineering*, 1964
B.N.E., M.S., North Carolina State University; Ph.D., University of Florida.
- REED, IRVIN F. _____ *Research Lecturer, Agricultural Engineering (P.E.)*, 1957
B.S., A.E., University of Nebraska; M.S., Ohio State University.
- REGNIER, JOHN EDWARD _____ *Research Lecturer of Radiological Sciences*, 1965
B.S., South Dakota School of Mines and Technology; M.S., Ph.D., University of Florida.

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B.S., Auburn University; Ph.D., University of Wisconsin; LL.B., Jones Law School.
- RENOLL, ELMO S. _____ *Associate Professor of Agricultural Engineering (P.E.)*, 1949, 1955
B.S., Auburn University; M.S., Iowa State University.
- REYNOLDS, TED M. _____ *Instructor in Anatomy-Histology*, 1966
D.V.M., Auburn University.
- RICHARD, ANTHONY H., JR. _____ *Professor of Aerospace Studies, Air Force ROTC*, 1964
B.S., U.S. Military Academy; Colonel, USAF.
- RICHARDSON, DON RAMON _____ *Assistant Professor of Speech*, 1966
B.A., Auburn University; M.A., Ph.D., Ohio University.
- RICHARDSON, JESSE M. _____ *Professor of Economics and Geography*, 1943, 1957
B.S., M.A., University of Alabama; Ph.D., Peabody College.
- RICHARDSON, THOMAS J. _____ *Instructor in English*, 1965
B.A., University of Southern Mississippi; M.A., University of Alabama.
- RITLAND, RAYMOND W. _____ *Professor of Economics and Business Administration*, 1957, 1959
B.S.C., M.A., Ph.D., University of Iowa.
- ROBERSON, NANCY C. _____ *Assistant Professor of History and Political Science*, 1959, 1964
B.A., Randolph-Macon Woman's College; M.A., University of Alabama.
- ROBERTS, CHARLES S. _____ *Professor of Pathology and Parasitology and Director, Alabama Veterinary Diagnostic Laboratory*, 1947, 1963
D.V.M., Auburn University; M.S., Michigan State University.
- ROBERTSON, BENJAMIN T. _____ *Assistant Professor of Physiology*, 1960, 1963
B.S., University of Kentucky; D.V.M., M.S., Auburn University.
- ROBINSON, A. JUDE _____ *Associate Professor of Mathematics*, 1923, 1935
B.S., Clemson University; M.A., Emory University.
- ROBINSON, CECIL EUGENE _____ *Associate Professor of Mathematics*, 1962, 1965
B.S., Auburn University; M.A., Ph.D., University of Alabama.
- ROBINSON, WALTER J., JR. _____ *Associate Professor of Aerospace Engineering*, 1959, 1966
B.S.A.A., Auburn University; M.B.A., University of Denver.
- ROGERS, CHARLES L. _____ *Assistant Professor of Electrical Engineering*, 1961, 1964
B.E.E., M.S., Auburn University.
- ROGERS, HOWARD T. _____ *Professor of Agronomy and Soils*, 1942, 1966
B.S., Virginia Polytechnic Institute; M.S., Michigan State University; Ph.D., Iowa State University.
- ROLLINS, GILBERT H. _____ *Associate Professor of Dairy Science*, 1948, 1953
B.S., M.S., Virginia Polytechnic Institute; Ph.D., University of Illinois.
- ROSE, CHARLES S., JR. _____ *Assistant Professor of English*, 1960
A.B., Vanderbilt University; M.A., Ph.D., University of Florida.
- ROSE, EITHEL _____ *Professor of Home Economics*, 1959
B.S., M.S., Indiana State College; Ph.D., Ohio State University.
- ROSEN, MELVIN _____ *Assistant Professor and Track Coach, Health, Physical Education, and Recreation*, 1955, 1963
B.S., M.A., Iowa State University.
- ROSENBAUM, LAWRENCE _____ *Professor and Assistant to the Dean, Architecture*, 1961, 1966
B.M., University of Arizona; M.M., University of Arkansas.
- ROSS, CONRAD H. _____ *Assistant Professor of Art*, 1963
B.F.A., University of Illinois; M.F.A., University of Iowa.
- ROUGHTON, EDGAR L. _____ *Assistant Professor of Education*, 1963
B.S., Georgia Southern College; M.Ed., Texas Technological College; Ph.D., University of South Carolina.
- ROUSE, R. D. _____ *Assistant Dean, School of Agriculture*, 1949, 1966
B.S., M.S., University of Georgia; Ph.D., Purdue University.
- RUDESELL, ROBERT S. _____ *Assistant Professor of Military Science, Army ROTC*, 1966
B.S., U.S. Military Academy; Captain, U.S. Army.
- RUSSELL, DALLAS WILSON _____ *Professor of Electrical Engineering*, 1959, 1963
B.S.E.E., M.S.E.E., University of Tennessee.
- SAIA, CLAUDE V. _____ *Assistant Football Coach*, 1964
B.S., M.Ed., Auburn University.

- SALZMANN, FRANK L. _____ *Instructor in Mathematics*, 1960, 1963
B.S., M.S., Auburn University.
- *SALZMANN, JEANETTE J. _____ *Instructor in History and Political Science*, 1964
B.S., Auburn University.
- SANDERS, A. DEWEY _____ *Assistant Professor of Mathematics*, 1946, 1947
B.A., DePauw University; M.A., University of Michigan.
- SANDERS, J. W. _____ *Assistant Professor of Speech*, 1952, 1959
B.A., Tampa University; B.A., M.A., University of Florida.
- SANDERSON, KENNETH C. _____ *Assistant Professor of Horticulture*, 1966
B.S., Cornell University; M.S., Ph.D., University of Maryland.
- SAUNDERS, CHARLES RICHARD _____ *Dean, School of Chemistry*, 1924, 1950
B.S., M.S., Auburn University; Ph.D., University of Nebraska.
- SAUNDERS, ROBERT L. _____ *Assistant Dean and Professor of Education*, 1957, 1965
B.S., M.S., Ed.D., Auburn University.
- SAVELL, EMILY McMILLAN _____ *Instructor in Art*, 1966
B.A.A., Auburn University.
- SAWYER, DONALD A. _____ *Head Professor of Civil Engineering*, 1965
B.C.E., M.S.E., Ph.D., University of Florida.
- SCARBOROUGH, JOHN LEWIS _____ *Associate Professor of Mechanical Engineering (P.E.)*, 1947, 1954
B.A.E., B.M.E., Auburn University; M.S., University of Alabama.
- SCARSBROOK, CLARENCE E. _____ *Professor of Agronomy and Soils*, 1953, 1959
B.S., Auburn University; Ph.D., North Carolina State University.
- SCHAEER, WALTER A. _____ *Professor of Industrial Design*, 1960, 1965
B.A.A., Technical Institute of Berne; B.I.D., M.I.D., Ulm Graduate School of Design.
- SCHAFER, CAROLYN H. _____ *Instructor in Home Economics*, 1966
B.S., M.S., Iowa State University.
- SCHIED, PAUL W. _____ *Professor of Education*, 1957, 1960
A.B., Miami University; A.M., Duke University; Ph.D., Ohio State University.
- SCHELL, FRED G. _____ *Head Professor of Large Animal Surgery and Medicine*, 1956, 1959
D.V.M., Auburn University.
- SCHNEIDER, ARTHUR E. _____ *Instructor in English*, 1965
B.A., DePauw University; M.A., Florida State University.
- SCHRADER, GLENN A. _____ *Professor of Chemistry*, 1930, 1949
B.S., M.S., Beloit College; Ph.D., University of Wisconsin.
- *SCHRADER, MYRTLE HARMON _____ *Instructor in Physical Education*, 1965
B.S.Ed., Radford College.
- SCHUESSLER, VIRADA K. _____ *Assistant Professor and Coordinator of Student Personal Service*, 1965
B.A., Judson College; M.Ed., Auburn University.
- SCHULTZ, F. BERNARD _____ *Special Lecturer, Laboratory Technology*, 1962
B.S., St. Ambrose College; M.D., Georgetown University.
- SCLATER, ARTHUR L., JR. _____ *Assistant Professor of Aerospace Studies*, 1965
B.S., Auburn University; Captain, U.S. Air Force.
- SELMAN, JAMES W. _____ *Assistant Professor of Vocational, Technical and Practical Arts Education*, 1964
B.S., M.S., Florida State University.
- SENN, C. L. _____ *Assistant Football Coach*, 1945, 1948
B.S., Auburn University.
- SFORZINI, RICHARD H. _____ *Visiting Professor of Aerospace Engineering*, 1966
B.S., United States Military Academy; Degree of Mechanical Engineering, Massachusetts Institute of Technology.
- SHANDS, WAYLAND A., JR. _____ *Assistant Professor of Botany and Plant Pathology*, 1963
B.S., University of Maine; M.S., University of Delaware.
- SHANTZ, HERMIONE _____ *Assistant Professor of Foundations of Education*, 1966
B.A., M.A., Michigan State University.
- SHAW, WINFRED A. _____ *Professor of Mechanical Engineering (P.E.)*, 1958
B.S.G.E., University of Mississippi; M.S.E.M., University of Texas; Ph.D., Stanford University.
- SHELL, F. WAYNE _____ *Associate Professor of Zoology and Entomology*, 1952, 1965
B.S., M.S., Auburn University; Ph.D., Cornell University.

* Temporary.

- SHELL, WILLIAM B. *Assistant Professor of Secondary Education, 1965, 1966*
A.B., Wofford College; M.Ed., E.Ed., Auburn University.
- SHELTON, ROBERT L. *Instructor in Art, 1964*
B.A., Memphis State University; M.A., University of Alabama.
- SHEPARD, JAMES C., JR. *Instructor in Foreign Languages, 1965*
B.A., Huntingdon College; M.A., University of Alabama.
- SHERLING, WILLIAM G. *Associate Professor of Aerospace Engineering*
B.A.E., Auburn University; M.S.A.E., Georgia Institute of Technology. (P.E.), 1947, 1954
- *SHIELDS, ALAN J. *Associate Professor of Sociology, 1956, 1963*
B.A., M.A., North Texas State University.
- SHIELDS, ROBERT P. *Assistant Professor of Pathology and Parasitology, 1966*
D.V.M., M.S., Auburn University; M.S., University of Arkansas.
- SHIRE, JEANNETTE C. *Catalog Librarian and Instructor, 1963*
B.S.L.S., B.A., Carnegie Institute of Technology; M.A., University of Pittsburgh.
- SHOFFEITT, PAUL E. *Research Lecturer of Toxicology, Pharmacy, 1964*
B.S., M.S., Ph.D., Auburn University; LL.B., Jones Law School.
- SIMMONS, CHARLES F. *Associate Dean, School of Agriculture, 1946, 1951*
B.S., M.S., Auburn University; Ph.D., Ohio State University.
- *SIMMONS, W. S. *Instructor in Chemistry, 1965*
B.S.Chem., Auburn University.
- SIMS, MARVIN W. *Assistant Professor of Naval Science, 1965*
B.S., University of Mississippi; Lieutenant, U.S. Navy.
- *SINIARD, NADENE R. *Instructor in Health, Physical Education and Recreation, 1965*
B.S., Slippery Rock State College.
- SKELTON, ROBERT BEATTIE *Head Professor of Foreign Languages, 1939, 1954*
A.B., Michigan State Normal College; M.A., Ph.D., University of Michigan; Certificado, University of Brazil; Certificado, University of Chile.
- *SLACH, TIM DENNIS *Associate Professor of Electrical Engineering, 1958, 1965*
B.S., Michigan College of Mining and Technology; M.S., Auburn University.
- *SMITH, A. Q. *Instructor in English, 1965*
B.A., M.A., University of Iowa.
- SMITH, DONALD M. *Agricultural Engineer, Field Superintendent, 1962*
B.S., A.N., Auburn University.
- SMITH, EDWIN V. *Dean, School of Agriculture and Director, Agricultural Experiment Station, 1929, 1951*
B.S., Auburn University; M.S., Ph.D., Iowa State University.
- SMITH, FLOYD S. *Associate Professor of Mechanical Engineering (P.E.), 1946, 1955*
B.S., Virginia Military Institute; B.S.Ch.E., M.S.Ch.E., B.S.M.E., Auburn University.
- SMITH, RICHARD KENT *Assistant Professor of Psychology, 1965*
B.A., M.A., University of Montana; Ph.D., Tulane University.
- SMITH, ROBERT C. *Associate Professor of Animal Science, 1961, 1963*
B.S., Elmhurst College; M.S., Ph.D., University of Illinois College of Medicine.
- SMITH, SYLVIA T. *Instructor in Clothing and Textiles, 1966*
B.S., Berea College; M.S., University of Tennessee.
- SMITH, WILLIAM STEPHEN *Alumni Professor of Speech, 1952, 1959*
B.Ed., Northern Illinois State University; M.A., Ph.D., Stanford University.
- *SOLOMON, OLIVIA PIENEZZA *Instructor in English, 1963*
A.B., M.A., University of Alabama.
- SPARKS, FRANK M. *Associate Professor of Physics, 1943, 1946*
B.S., Auburn University; M.A., Ph.D., University of Illinois.
- *SPAULDING, JOHN E. *Instructor in Microbiology, 1965*
D.V.M., Ohio State University.
- SPEARS, WILLIAM D. *Head Professor of Psychology, 1961*
A.B., M.Ed., University of Chattanooga; Ph.D., Peabody College.
- SPEER, WILLIAM A. *Dean, School of Architecture and the Arts, 1962*
B.S.Arch., Clemson University; M.Arch., Rensselaer Polytechnic Institute.

* Temporary.

** On leave.

- SPENCER, GARY DALE.....Assistant Professor of Education; Director,
B.S., M.A., Ed.D., Arizona State University. Reading Clinic, 1963
- SPENCER, LILLY HESTER.....Associate Professor of Home Economics, 1928, 1935
B.S., M.S., Oklahoma State University.
- SPIN, WILLIAM A.....Assistant Professor of Military Science, 1965
B.A., Washington and Jefferson College; Captain, U.S. Army.
- SPRAGUE, ALBERT T., JR.....Associate Professor of Electrical Engineering (P.E.), 1949
B.S., U.S. Naval Academy; M.S., Harvard University.
- SQUIRES, C. D.....Associate Professor of Animal Science, 1950
B.S., M.A., Ph.D., University of Missouri.
- STALCUP, ROBERT JAMES.....Acting Head Professor of Foundations
B.A., Huron College; M.A., Ed.D., University of Nebraska. of Education, 1960, 1964
- STALNAKER, CARROL C.....Associate Professor of Economics and
Business Administration, 1937, 1946
B.A., State College of Iowa; M.A., University of Iowa.
- STANALAND, EUGENE E.....Assistant Professor of Economics and
Business Administration, 1960, 1964
B.S., Huntingdon College; M.B.A., University of Alabama.
- STEELE, H. ELLSWORTH.....Research Professor of Economics and
Business Administration, 1949, 1951
B.A., M.A., University of Nebraska; Ph.D., Ohio State University.
- STEPHENS, JULIAN, JR.....Assistant Professor of Music, 1963
B.S., Jacksonville State University; M.A., University of Alabama.
- STEVENS, FRANK J.....Professor of Chemistry, 1947, 1959
B.S., University of Illinois; Ph.D., Iowa State University.
- *STEVENSON, JAMES R.....Instructor in Poultry Science, 1965
B.S., Auburn University.
- *STEWART, CHARLES DAVID.....Instructor in Engineering Graphics, 1959, 1965
B.S., University of Alabama; B.S.A.E., Auburn University.
- STEWART, JUDY CAROL.....Instructor in Art, 1965, 1966
B.F.A., Louisiana College.
- STOKES, CHARLES R.....Associate Professor of Naval Science, 1964
B.S., U.S. Naval Academy; Commander, U.S. Navy.
- STOKES, CHARLIE MACK.....Associate Professor of Agricultural
Engineering (P.E.), 1937, 1962
B.S., M.S., Auburn University.
- *STOTT, GEORGE G.....Instructor in Anatomy and Histology, 1965
B.Sc., Utah State University; D.V.M., Iowa State University.
- STREET, DONALD R.....Assistant Professor of Economics and Business
Administration, 1965
B.S., M.S., Auburn University; Ph.D., Pennsylvania State University.
- STRENGTH, D. RALPH.....Alumni Professor of Animal Science, 1961, 1967
B.S., M.S., Auburn University; Ph.D., Cornell University.
- STRICKLAND, JOHN P.....Assistant Professor of Art, 1963
B.F.A., M.A., Cranbrook Academy of Art.
- STROUD, OXFORD.....Assistant Professor of English, 1950, 1957
B.S., M.A., Auburn University.
- STURKIE, D. G.....Professor of Agronomy and Soils, 1925, 1942
B.S., Auburn University; M.S., Iowa State University; Ph.D., Michigan State University.
- SWEENEY, J. B., JR.....Professor of Naval Science, 1966
B.A., Amherst College; LL.B., University of Maryland; Captain, U.S. Navy.
- SWINGLE, HOMER SCOTT.....Professor of Zoology-Entomology, 1929, 1939
B.S., M.S., D.Sc. (Hon.), Ohio State University.
- SWINSON, WELDON FRANK.....Associate Professor of Mechanical Engineering, 1964
B.A., Rice University; B.S.M.E., Texas Technological College; M.S.M.E., Texas A. and M.
University; Ph.D., University of Illinois.
- SYKES, MALTBY.....Professor of Art, 1942, 1954
Studied with Wayman Adams, Diego Rivera, John Sloan, George C. Miller, Fernand Leger,
Stanley William Hayter, and Andre Lhote.

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- *SZILASSY, CLARA I. *Instructor in Learning Resources Center*, 1962, 1965
L.L.D., University of Pecs (Hungary).
- SZILASSY, SANDOR *Head, Science and Technology Division and Associate Professor (Library)*, 1961, 1965
L.L.D., University of Budapest; M.A.L.S., Indiana University.
- TAMBLYN, JOHN W. *Professor of Music*, 1948, 1962
B.S., B.S., Auburn University; M.Mus., Ph.D., University of Rochester.
- TANGER, GERALD EUGENE *Professor of Mechanical Engineering (P.E.)*, 1958, 1960
B.S., South Dakota School of Mines and Technology; M.S., Brown University; Ph.D., Oklahoma State University.
- TASPINAR, ADNAN SELCUK *Associate Professor of Architecture*, 1965
B.S.EngArc., Technical University of Istanbul, Turkey; M.Arch., University of Pennsylvania.
- TAUGNER, AGNES B. *Assistant Professor of Art*, 1963
B.F.A., M.F.A., University of Illinois.
- TAYLOR, HOWARD M. *Research Lecturer, Agronomy and Soils*, 1966
B.S., Texas Technological College; Ph.D., University of California.
- TAYLOR, ZELMA LOWELL, JR. *Assistant Research Professor of Chemical Engineering*, 1962, 1966
B.S.Ch.E., University of Idaho; M.S., Auburn University; Ph.D., University of Florida.
- TEAGUE, WAYNE *Assistant Professor of Educational Administration*, 1963
B.S., M.S., Ed.D., Auburn University.
- TEER, PATRICIA ANNE *Assistant Professor of Pathology and Parasitology*, 1959, 1963
D.V.M., M.S., Auburn University.
- TEGGINS, JOHN E. *Assistant Professor of Chemistry*, 1966
B.S., Sheffield University; A.M., Ph.D., Boston University.
- THAXTON, C. DONALD *Assistant Professor of Physics*, 1966
B.S., University of Richmond; Ph.D., University of North Carolina.
- THOMASSON, C. LARRY *Associate Professor of Pharmacy*, 1966
B.S., University of Cincinnati; Ph.D., University of Florida.
- THOMPSON, SEABORN A. *Counselor, Student Counseling Service*, 1966
B.S., Troy State College; B.D., Emory University; M.Ed., Auburn University.
- THOMPSON, SIDNEY LEE *Associate Professor of Mathematics*, 1937, 1948
B.S., Birmingham-Southern College; M.S., Tulane University; M.A., University of Michigan.
- THORNTON, ROBERT W. *Associate Professor of Engineering Graphics*, 1966
B.S., Ohio State University; M.A., Colorado State University.
- TRUCKS, LOUIS B. *Assistant Professor of Industrial Engineering (P.E.)*, 1964
B.S., Auburn University; M.S., University of Pittsburgh.
- TUCKER, HOWARD F. *Associate Professor of Animal Science*, 1949, 1962
B.S., M.S., Ph.D., Auburn University.
- TURK, WILLIAM BROOKE *Assistant Director of Student Health*, 1965
B.S., Auburn University; M.D., Louisiana State University Medical Center.
- TURNER, A. JACK *Assistant Professor of Psychology*, 1956, 1964
B.S., Auburn University; Ph.D., Florida State University.
- TURNER, LOUISE K. *Assistant Professor of Health, Physical Education and Recreation*, 1937, 1946
B.A., Southwestern Louisiana University; M.A., M.S., Louisiana State University.
- TURNER, D. M. *Associate Professor of Animal Science*, 1940, 1962
B.S., Auburn University; M.S., University of Illinois.
- UMBACH, ARNOLD W. *Professor of Health, Physical Education and Recreation*, 1944, 1945
B.S., Southwestern State Teachers College; M.A., Colorado State College of Education.
- VACHON, REGINALD I. *Alumni Associate Professor of Mechanical Engineering*, 1958, 1963
B.M.E., M.S.N.S., Auburn University; Ph.D., Oklahoma State University.
- *VALLERY, GEORGIA G. *Assistant Professor of Psychology*, 1951, 1963
B.S., M.A., Louisiana State University; M.S., Auburn University.
- VAN DE MARK, MILDRED S. *Acting Dean, Home Economics*, 1948, 1966
B.S., Auburn University; M.A., Columbia University.

- *VAN ETEN, MARY INEZ.....*Instructor in Health, Physical Education and Recreation*, 1964
B.S., Northwest Missouri State College.
- VAUGHAN, JOHN THOMAS.....*Associate Professor of Large Animal Surgery and Medicine*, 1955, 1965
D.V.M., M.S., Auburn University.
- VESTAL, DONALD M., JR.....*Head Professor of Mechanical Engineering (P.E.)*, 1959
B.S.M.E., B.S.E.E., M.S.M.E., Texas A. & M. University; Ph.D., Stanford University.
- VICKERY, JAMES F., JR.....*Director of Debate*, 1965
B.A., M.A., Auburn University.
- *VINSON, RICHARD G.....*Visiting Professor of Secondary Education*, 1963
B.A., Huntingdon College; M.A., Florida State University; Ph.D., University of Alabama.
- VIVES, DONALD LOUIS.....*Associate Professor of Chemical Engineering*, 1953, 1957
B.S., M.S., Columbia University.
- WADE, MERLE L.....*Assistant Professor of Military Science, Army ROTC*, 1965
B.A., Jacksonville State University; Major, U.S. Army.
- WALDEN, JOHN CLAYTON.....*Assistant Professor of Education Administration, Supervision and Guidance*, 1966
B.A., University of California; M.A., California State College; Ph.D., Claremont College.
- WALDROP, HERBERT.....*Instructor in Health, Physical Education and Recreation*, 1960
B.S., M.S., Auburn University.
- WALKER, BRACK.....*Assistant Professor of Art*, 1961, 1964
B.A., Florence State College; M.F.A., University of California.
- WALKER, DONALD F.....*Professor of Large Animal Surgery and Medicine*, 1958, 1966
D.V.M., Colorado State University.
- WALL, MINNIE.....*Head of Catalog Division and Associate Professor (Library)*, 1947, 1965
A.B., Tift College; B.S.L.S., Peabody College; M.Ed., Auburn University.
- **WALLS, BILLY G.....*Associate Professor of Music*, 1961, 1965
B.M., Baylor University; M.Mus., Manhattan School of Music.
- WALTERS, H. WAYNE.....*Instructor in Foreign Languages*, 1966
B.A., Shorter College; M.A., University of Alabama.
- WALTERS, KENNETH W.....*Instructor in Philosophy*, 1964
B.A., Roosevelt University; M.A., Northwestern University.
- WARBINGTON, THOMAS L.....*Assistant Professor of Foreign Languages*, 1960, 1962
B.S., Mississippi College; M.A., University of Mississippi.
- WARD, BENJAMIN P.....*Associate Professor of Mechanical Engineering (P.E.)*, 1950
B.S., U.S. Naval Academy; M.S.M.E., Columbia University.
- WARD, C. H.....*Professor of Chemistry*, 1957, 1965
B.S., Indiana State Teachers College; M.S., University of Kentucky; Ph.D., Purdue University.
- *WARD, CHARLOTTE R.....*Assistant Professor of Physics*, 1959, 1964
B.S., University of Kentucky; M.S., Ph.D., Purdue University.
- WARMAN, JAMES C.....*Director of Water Resources Research Institute*, 1965
A.B., M.S., West Virginia University.
- WARNER, CARROLL R., JR.....*Assistant Professor of Military Science*, 1965
B.S., University of Maryland; Major, U.S. Army.
- WARNER, JOHN ELLSWORTH.....*Head, Social Science Division and Associate Professor (Library)*, 1959, 1964
B.S., B.S.L.S., New York State Teachers College; M.A., Ed.D., Columbia University.
- WARREN, W. M.....*Head, Animal Science*, 1955, 1957
B.S., Michigan State University; M.S., Texas A. & M. University; Ph.D., University of Missouri.
- WASHINGTON, WILLIAM TAYLOR.....*Instructor in Health, Physical Education and Recreation*, 1958
B.S., Auburn University.
- WATERS, JOHN PATRICK.....*Instructor in English*, 1966
B.A., Auburn University; M.A., University of Florida.
- WATERS, WILLIAM T.....*Professor of Textile Technology*, 1958, 1963
B.S.T.E., Clemson University; M.S., Institute of Textile Technology.
- WATSON, JACK E.....*Assistant Professor of Zoology and Entomology*, 1965
B.S., Shippensburg State College; M.S., Ph.D., Purdue University.

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** On leave.

- WATSON, ROBERT L. _____ *Instructor in Zoology-Entomology*, 1966
B.S.A., M.S., University of Arkansas.
- WEAR, JOHN I. _____ *Professor of Agronomy and Soils*, 1939, 1959
B.S., M.S., Auburn University; Ph.D., Purdue University.
- WEAVER, ANDREW M. _____ *Associate Professor of Education*, 1960
B.S., Tennessee Polytechnic Institute; M.A., Ed.D., University of Tennessee.
- WEEKS, KARL L. _____ *Assistant Professor of Military Science, Army ROTC*, 1966
Captain, U.S. Army.
- WEST, HOWARD M. _____ *Assistant Professor of Aerospace Studies,
Air Force ROTC*, 1963
B.S., University of Maryland; M.Ed., Auburn University; Lt. Col., U.S. Air Force.
- WESTMORELAND, FRANKLIN D. _____ *Assistant Professor of Military Science*, 1965
B.S., Texas A. & M. University; Captain, U.S. Army.
- WHARTENBY, FRANKLEE _____ *Assistant Professor of Economics*, 1966
A.B., Alabama College; M.S., Ph.D., University of North Carolina.
- WHARTENBY, HARRY ALLEN _____ *Associate Professor of Foreign Languages*, 1966
B.A., Temple University; M.A., Ph.D., University of North Carolina.
- WHATLEY, JAMES C., JR. _____ *Instructor in Economics and Business
Administration*, 1965
B.A., M.B.A., Auburn University.
- WHEATLEY, WALTER B. _____ *Instructor in Laboratory Technology*, 1966
B.S., Birmingham-Southern College; M.T. (ASCP) Lloyd Noland Foundation.
- WHITE, CHARLES RAYMOND _____ *Associate Professor of Industrial Engineering*, 1966
B.S.M.E., M.S.I.E., Ph.D.I.E., Purdue University.
- WHITE, MORRIS _____ *Professor of Agricultural Economics*, 1950, 1960
B.S., Auburn University; M.S., Ph.D., Purdue University.
- WHITE, VIRGINIA C. _____ *Associate Professor of Foods and Nutrition*, 1954, 1966
B.S., Alabama College; M.S., University of Tennessee.
- WHITE, WILLIAM F., JR. _____ *Instructor in Aerospace Engineering*, 1965
B.A.E., M.S.A.E., Auburn University.
- WHITEFORD, ROBERT D. _____ *Professor of Anatomy-Histology*, 1959
D.V.M., University of Georgia; M.S., Ph.D., Iowa State University.
- WIGGINS, AGEE M. _____ *Professor of Large Animal Surgery and Medicine*, 1946, 1959
D.V.M., Auburn University; M.S., Kansas State University.
- WIGGINS, EARL L. _____ *Associate Professor of Animal Science*, 1956
B.S., M.S., Oklahoma State University; Ph.D., University of Wisconsin.
- WILBANKS, MARY ELIZABETH _____ *Special Collections Librarian and
Instructor (Library)*, 1959, 1962
A.B., Alabama College; M.A., Emory University; M.S.L.S., University of North Carolina.
- WILDER, BOBBY EARL _____ *Assistant Professor of Mathematics*, 1966
B.S., M.S., Ph.D., Auburn University.
- WILDER, VIRGINIA V. _____ *Assistant Professor of Elementary Education*, 1966
B.S., M.Ed., University of Georgia.
- WILKIN, LEON O., JR. _____ *Associate Professor of Pharmacy*, 1963
B.S., Loyola University; M.S., Ph.D., University of Texas.
- WILLIAMS, BYRON B., JR. _____ *Professor of Pharmacy*, 1951, 1962
B.S., M.S., Ph.D., University of Florida.
- WILLIAMS, ELIZABETH GRIMES _____ *Assistant Professor of Economics and
Business Administration*, 1946, 1959
B.S., M.S., Auburn University.
- WILLIAMS, ERNEST _____ *Professor of Mathematics*, 1934, 1948
B.S., Birmingham-Southern College; M.S., Auburn University; Ph.D., University of Michigan.
- WILLIAMS, HUGH O. _____ *Professor of Art*, 1957, 1959
B.A.A., Auburn University; M.F.A., A.E.D., Columbia University.
- WILLIAMS, LELAND H. _____ *Director, Computer Center, Associate Professor
of Mathematics*, 1966
B.S., University of South Carolina; M.S., University of Georgia; Ph.D., Duke University.
- WILLIAMS, MARVIN O. _____ *Associate Professor of Aerospace Engineering*, 1942, 1965
A.B., Birmingham-Southern College; B.A.E., Auburn University.

- WILLIAMSON, EDWARD C. *Associate Professor of History and Political Science*, 1957, 1963
A.B., M.A., University of Florida; Ph.D., University of Pennsylvania.
- WILSON, LOWELL E. *Associate Professor of Agricultural Economics*, 1960, 1963
B.S., Murray State College; M.S., University of Kentucky; Ph.D., University of Illinois.
- WILT, GERALD R. *Assistant Professor of Microbiology*, 1962, 1965
B.S., Western Kentucky State College; M.S., Clemson University.
- WINGARD, JOHN W. *Assistant Professor of Industrial Laboratories*, 1957, 1962
B.S., M.S., Auburn University.
- WINGARD, ROBERT EUGENE *Head Professor of Chemical Engineering*, 1932, 1963
B.S., M.S., Auburn University.
- WINKLER, JOHN K. *Associate Professor of Large Animal Surgery and Medicine*, 1962, 1963
D.V.M., Colorado State University.
- WITHERSPOON, DON M. *Associate Professor of Large Animal Surgery and Medicine*, 1964
D.V.M., University of Georgia.
- WOLFE, WALTER NOAKES *Instructor in Mathematics*, 1966
B.S., Auburn University; M.S., DePaul University.
- WOMACK, ADNER W. *Instructor in Economics and Business Administration*, 1966
B.S., M.S., Auburn University.
- WOOD, ROBERT E. *Assistant Professor of History and Political Science*, 1966
B.A., M.A., University of Oklahoma.
- WOODALL, JAMES R. *Professor of English*, 1952, 1965
B.S., Murray State University; M.A., University of Kentucky; Ph.D., Vanderbilt University.
- WOODLEY, CHARLES H. *Professor of Physiology and Pharmacology*, 1958, 1963
D.V.M., M.S., Auburn University.
- WRIGHT, THOMAS L. *Associate Professor of English*, 1960, 1964
B.A., M.A., Ph.D., Tulane University.
- WYNN, MARY EDNA *Instructor in English*, 1965
B.A., Newberry College; M.A., University of Virginia.
- YEAGER, JOSEPH H. *Head, Department of Agricultural Economics, and Rural Sociology*, 1946, 1964
B.S., M.S., Auburn University; Ph.D., Purdue University.
- *YIELDING, KATRINA *Instructor in Secondary Education*, 1965
B.S., M.S., Auburn University.
- YOUNG, LUTHER M. *Associate Professor of Health, Physical Education and Recreation*, 1944, 1959
B.S., M.S., Auburn University.
- YOUNG, RICHARD EARLE *Assistant Professor of Foundations of Education*, 1959, 1963
B.S., Florence State College; M.A., University of Vermont; M.Ed., Ed.D., Auburn University.
- ZARCONI, SALVATORE *Instructor in Health, Physical Education, and Recreation*, 1966
B.S., Auburn University.
- ZIEGLER, PAUL F. *Associate Professor of Chemistry*, 1949, 1958
B.S., Otterbein College; M.S., Ph.D., University of Cincinnati.
- ZEITLER, THEO *Assistant Professor of Industrial Design*, 1966
B.S., Technical Institute of Chemnitz; B.I.D., M.I.D., Ulm Graduate School of Design.

EMERITI, 1966

- DRAUGHON, RALPH BROWN *President Emeritus*, August, 1965
B.S., M.S., Auburn University; LL.D., Birmingham-Southern College; L.H.D., Samford University; LL.D., University of Alabama.
- ALLISON, FRED *Professor Emeritus of Physics*, March, 1961
A.B., Emory and Henry College; M.A., Ph.D., University of Virginia; D.Sc., Auburn University; LL.D., Emory and Henry College.
- ALVORD, BEN FINLEY *Professor Emeritus of Research Data Analysis*, June, 1966
B.S., M.S., University of Illinois.
- ATKINSON, T. P. *Professor Emeritus of Foreign Languages*, March, 1961
Ph.B., A.B., Lebanon University; M.A., University of Georgia.

* Temporary.

- BASORE, CLEBURNE A. _____ *Professor Emeritus of Chemical Engineering, June, 1963*
B.S., M.S., Auburn University; M.A., University of Michigan; Ph.D., Columbia University.
- CARLOVITZ, GILES H. _____ *Professor Emeritus of Electrical Engineering, June, 1965*
B.S., M.S.E.E., Auburn University.
- CHADWICK, JAMES HERBERT _____ *Associate Professor Emeritus of Electrical*
B.S., U.S. Naval Academy; M.S.E.E., Columbia University. *Engineering, January, 1966*
- COPPEDGE, WILLIAM HOUSTON _____ *Associate Professor Emeritus of*
Industrial Engineering, June, 1966
B.S., Oklahoma State University; M.S., Auburn University.
- EATON, W. H. _____ *Associate Professor Emeritus of Dairy Husbandry, March, 1961*
B.S., North Carolina State University.
- EDWARDS, CHARLES WESLEY _____ *Registrar Emeritus, June, 1966*
B.S., Auburn University; M.A., Harvard University.
- ELIZONDO, YNDALECIO ANDRES _____ *Associate Professor Emeritus of*
B.S.C.E., B.S.M.E., M.S., Auburn University. *Mechanical Engineering, June, 1966*
- GRIMES, J. C. _____ *Professor Emeritus of Animal Husbandry and Nutrition, March, 1961*
B.S., University of Tennessee; M.S., University of Kentucky.
- GUYTON, FAYE E. _____ *Professor Emeritus of Zoology-Entomology, June, 1963*
B.S., M.S., Ohio State University.
- HOEPPNER, THEODORE CHRISTIAN _____ *Professor Emeritus of English, June, 1966*
B.S., Memphis State University; M.A., Vanderbilt University.
- HUTSELL, WILBUR HALL _____ *Professor Emeritus, Athletic Department, June, 1963*
A.B., University of Missouri.
- ISBELL, C. L. _____ *Professor Emeritus of Horticulture, March, 1961*
B.S., Auburn University; M.S., Ph.D., Michigan State University.
- JONES, DAN T. _____ *Professor Emeritus of Industrial Laboratories, June, 1961*
Diploma, Auburn University.
- KUDERNA, JEROME _____ *Professor Emeritus of Education, June, 1962*
B.S., M.A., Michigan State University.
- PITTS, JOHN E. _____ *Associate Professor Emeritus of Mathematics, March, 1961*
B.S., E.E., Auburn University.
- RITCHIE, VIRGINIA CORBIN _____ *Associate Professor Emeritus of Home*
B.S., M.S., University of Kentucky. *Economics, June, 1966*
- ROE, JOHN W. _____ *Associate Professor Emeritus of Foreign Languages, March, 1961*
A.B., M.A., Cornell University.
- SAHAG, L. M. _____ *Professor Emeritus of Engineering Graphics, March, 1961*
B.S., University of North Carolina; M.S., Auburn University.
- SEAL, JAMES LEWIS _____ *Professor Emeritus of Botany, June, 1963*
B.S.Ag., Clemson University; M.S., Iowa State University; Ph.D., University of Minnesota.
- SHOWALTER, B. R. _____ *Professor Emeritus of Education, March, 1961*
A.B., Oberlin College; M.A., Ph.D., Columbia University.
- SPANN, RANSOM D. _____ *Professor Emeritus of Electrical Engineering, June, 1964*
B.S.E.E., E.E., Auburn University.
- SPIDLE, MARION WALKER _____ *Dean Emeritus of the School of Home*
B.S., Alabama College; B.S., M.A., Columbia University. *Economics, June, 1966*
- WARE, LAMAR MIMS _____ *Head Professor Emeritus of Horticulture, June, 1966*
B.S., M.S., Auburn University.
- WATWOOD, VERNON BELL _____ *Professor Emeritus of Civil Engineering, June, 1966*
B.C.E., M.C.E., Auburn University.

ADMINISTRATIVE AND TECHNICAL STAFF

- ALLGOOD, JAMES LOUIS..... Maintenance Custodian, Women's Dormitories, 1954
- ANDERSON, JAMES A..... Production Manager, Educational TV, 1964, 1966
B.A., University of Alabama.
- ANDREWS, RUBY S..... Housemother, Magnolia Dormitories, 1961, 1963
- ATTLEBERGER, FREDERICK RAYMOND..... Instructor in Laboratory
M.T., Franklin School of Science and Arts. Technology, 1941, 1944
- BAILEY, BESSIE..... Chief Operator PBX, Buildings and Grounds, 1947, 1959
- BARROW, WILLIAM OWENS..... Senior Counselor, Student Counseling
A.B., Birmingham-Southern College; M.A., Peabody College. Service, 1948, 1951
- BARTON, FREIDA C..... Head Resident of Dana Gatchell Hall, 1956, 1962
- BEATY, MAUDE F..... Head Resident, Dowell Hall, 1965
- BECKWITH, WILLIAM H..... Director of Sports Public Relations, 1951, 1958
B.S., Auburn University.
- BELSER, MARY LITTLEJOHN..... Senior Library Assistant, Social Science Division, 1963
A.B., Sweet Briar College; M.A., Peabody College.
- BENTLEY, CHARLES S..... Assistant Dean of Student Affairs, 1951, 1965
B.S., M.S., Auburn University.
- BICKEL, MARGARET E..... Tabulating Equipment Supervisor,
Business Office, 1945, 1963
- BLACK, HENRY G., JR..... Electronics Technician in Electrical Engineering, 1960
- BLACKSHEAR, DAVID WENDELL..... Programmer, 1966
B.S., Georgia State College; IBM Education Center.
- BOUTWELL, CHARLES E..... Education and Training Specialist, Air Force, 1965
S.Sgt., U.S. Air Force.
- BOWLES, E. W., JR..... Instructor, Military Science, 1966
SFC, U.S. Army.
- BOWMAN, JOSEPH R..... Construction Engineer, Buildings and Grounds, 1945
- BOZEMAN, IRA MAE..... Head Resident, Auburn Hall, 1965
B.S., Troy State College.
- BRACKIN, GLENN H., JR..... Studio Supervisor, Educational TV, 1965
- BRADBERRY, GEORGE L..... Associate Secretary, Alumni Association, 1951, 1966
B.S., University of Georgia.
- BRANDON, ROBERT A..... Operations Engineer, Educational TV, 1965
- BRASHER, ROBERT C..... Supply Sergeant, Military Science, 1966
S.Sgt., U.S. Army.
- BROWN, WILLIAM W..... Producer-Director of Educational TV, 1965
B.A., Auburn University.
- BURGESS, JOHN ROBERT..... Purchasing Agent, Business Office, 1966
- BURROUGHS, CHARLES R..... Maintenance Mechanic, Buildings and Grounds, 1963
- BURTS, AGNES..... Head Resident of Teague Hall, 1964, 1965
- CAINE, LEON D..... Floor Maintenance Foreman, Buildings and Grounds, 1946, 1957
- CALHOUN, CUSSIE R..... Assistant to the Dean of Women, 1963
B.A., M.A., Louisiana Polytechnic Institute.
- CAMPBELL, GLADYS T..... Head Resident, Keller Hall, 1964
- CARGILE, ROY C..... Bursar, Business Office, 1945
B.S., M.S., Auburn University.
- CARMACK, DOROTHY D..... Chief Clerk, Drake Infirmary, 1964
- CARGILE, TRUDY..... Editor, University News Bureau, University Relations, 1962
- CARTER, ALFRED R..... Housing Manager, Married Students Housing, 1964
B.S., Auburn University.

- CHAMBERS, OLIVE C. _____ Staff Nurse, Infirmary, 1968
R.N., McKinney City Hospital.
- CHILDRESS, BETTY W. _____ Budget Clerk, Business Office, 1965, 1966
- CHILDS, FRANCES S. _____ Personnel Assistant, University Personnel Office, 1965
B.A., Converse College.
- CHITWOOD, MANUEL R. _____ Instructor of Naval Science, 1965
- CHRUSTENBERRY, EVA R. _____ Head Dietitian, Food Service, 1966
B.S., Foods and Nutrition, Auburn University.
- COLLEY, WOODIE L. _____ Storeroom Supervisor, Food Service, 1966
- CONNELL, PHYLLIS B. _____ Library Assistant, 1958, 1965
- COOK, CLARENCE E. _____ Director of Auburn Union, 1960
B.A., M.A., Birmingham-Southern College.
- CORB, RALEIGH _____ Laboratory Mechanician, Physics, 1958
- CULLARS, J. W. _____ Maintenance Custodian, Magnolia Dormitories, 1945, 1952
- DAVIDSON, PRISCILLA P. _____ Senior Laboratory Technologist,
B.S., Auburn University. Pathology and Parasitology, 1966
- DAVIDSON, WILLIAM M., JR. _____ Sports Editor, Auburn Athletic Department, 1964
B.S., Auburn University.
- DAVIS, MARY LOU _____ Assistant Dietitian, Woman's Dining Hall, 1961
B.S., Auburn University.
- DAVIS, JOHN C. _____ Professional Horseman, Large Animal Surgery and Medicine, 1963
- DAVIS, LUTHER E. _____ Laboratory Mechanician, Textile Technology, 1955
- DAWSON, MILLARD E. _____ Chief Security Officer, Buildings and Grounds, 1951
- DEVAL, ELMORA _____ Assistant Dietitian, Magnolia Dining Hall, 1960
B.S., Syracuse University; M.S., Auburn University.
- DILWORTH, BEN P. _____ Assistant Supervisor of Vocational Agriculture, 1946, 1958
B.S., Mississippi State University.
- DIXON, CAROLYN J. _____ Archives Assistant, Library, 1960, 1965
B.S., Auburn University.
- DOROUGH, J. D. _____ Pest Control Foreman, Buildings and Grounds, 1949
- DUBOSE, ERNEST I. _____ Assistant Janitor Foreman, Buildings and Grounds, 1963
- DUGGAR, FOWLER, JR. _____ Administration Assistant and Alumnews Editor, 1953, 1966
A.B., University of Alabama; M.A., Duke University.
- ECHAVE, MARIA _____ Library Assistant, Social Science Division, 1964
Dr. en Filosofia y Letras, Dr. en Pedagogia, University of Havana.
- EDEN, THOMAS M., JR. _____ Producer-Director, Educational TV, 1955, 1962
B.S., Auburn University.
- ELLIS, THEO H. _____ Computer Scientist, Computer Center, 1960, 1964
B.A., B.S.A., M.S.A., Ph.D., University of Florida.
- ERICSON, LEIF R. _____ Director, Nonacademic Personnel Services, 1965, 1966
B.S., Auburn University.
- FISHER, PAT L. _____ Computer Programmer, Computer Center, 1966
B.S., Auburn University.
- FITZPATRICK, PHILLIP M. _____ Art and Staging Supervisor, Educational Television, 1966
B.F.A., Auburn University.
- FLOURNOY, GEORGE B. _____ Resident Manager, Plainsman Dormitory, 1963
B.S., Auburn University.
- FORBUS, MARY CECIL _____ Dietitian, South Woman's Dining Hall, 1962
B.S., Alabama College; M.A., Auburn University.
- FORTENBERRY, ROBERT NELSON _____ Director, Choctaw County School
B.A., M.Ed., Mississippi College. Improvement Program, 1965
- FOSTER, GEORGE C. _____ Assistant to the Dean, School of Science and Literature, 1952
B.S., Auburn University.

FRANKLIN, JAMES L.	Operations Supervisor, Computer Center, 1966
GALBREATH, DURWARD H.	Executive Officer, Military Science, 1963
B.S., United States Military Academy; Lt. Col., USA.	
GARDNER, LYNN M.	Assistant Dietitian, Food Service, 1964
B.S., Mississippi State College for Women.	
GIBSON, ALFRED E.	Accelerator Technician, Nuclear Science Center, 1966
GLISSON, GLENN A.	Education Training Specialist, Air Force ROTC, 1966
T.Sgt., U.S. Air Force.	
GODFREY, CLIFFORD B., JR.	Assistant Mechanical Forman, Buildings and Grounds, 1963, 1964
GOODEN, BOBBY L.	Electronics Technician, Nuclear Science Center, 1966
GRAVES, MILTON L., JR.	Administrative Assistant, Buildings and Grounds, 1962, 1964
B.S.I.M., Auburn University.	
GRAY, LEON A., JR.	Laboratory Mechanician, Civil Engineering, 1955
GREEN, HOWARD W.	Assistant Supervisor in Vocational Agriculture, 1948, 1958
B.S., M.S., Auburn University.	
GRIFFIN, EUGENE J.	Instructor in Military Science, 1964
SFC, U.S. Army.	
GRIGSBY, ALTON WAYNE	Laboratory Mechanician, Physics, 1964
GUY, ERNEST FLETCHER	Laboratory Mechanician, 1965
HAMILTON, DONALD WAYNE	Laboratory Mechanician, Aerospace Engineering, 1966
HANEY, PATTIE	Administrative Assistant, Alumni Office, 1934, 1963
HATTON, WILLIAM C.	Military Science, Army ROTC, 1966
SGM, U.S. Army.	
HAWKINS, CARL J.	Shop Foreman, Buildings and Grounds, 1959
HENRY, PAUL W.	Director of Auxiliary Enterprises, 1954, 1965
HERREN, FANNIE	Head Resident of Dunn Hall, 1965
HILL, A. A.	Electrical Foreman, Buildings and Grounds, 1943
HINES, MALISSA C.	Head Resident of Dormitory B, 1960, 1962
HITCHCOCK, BERT, JR.	Assistant Admissions Officer, 1966
B.A., Auburn University; M.A., University of Oregon.	
HOCKMAN, YNCS, WARREN D.	Instructor, Naval Science, 1965
HODGE, ROBERT E., JR.	Education Training Specialist, Aerospace Studies, Air Force ROTC, 1963
HOLLINGSWORTH, MABEL	Head Resident, Glenn Hall, 1956
HOLT, DURWOOD	Instrument Maker, Physics, 1964
HOOD, RICHARD L.	Assistant Janitor Foreman, Buildings and Grounds, 1957
HORNSBY, JESSIE DOWDLE	Laboratory Mechanician, Mechanical Engineering, 1960
HOWARD, MILFORD K.	Trainer, Athletics, 1948
B.S., Auburn University.	
HUDSON, BILLY R.	Paint Foreman, Buildings and Grounds, 1962
HUDSON, FRANK L.	Building Services Supervisor, Auburn Union, 1959, 1963
JACKSON, HORRIS C.	Laboratory Mechanician, Physics, 1964
JACOB, EDWARD F.	Engineering Aide, Educational TV, 1963
JENKINS, ELIZABETH	Head Resident of Harper Hall, 1954, 1956
JENKINS, FRANK W.	Counselor III, Vocational Rehabilitation Service, 1949, 1962
A.B., Emory University; M.Ed., Auburn University.	
JOHNSON, MARGARET K.	Library Assistant, Reader's Advisory Service, Library, 1965, 1966
B.A., University of Southwestern Louisiana.	

- JOHNSON, PHYLLIS S. Assistant Program Director, Auburn Union, 1964, 1965
Secretary Certificate from Athens College.
- JOHNSON, WENDELL W. Cinematographer, Educational TV, 1963
A.A., University of Minnesota.
- JOLLY, H. H. Laboratory Mechanician, Aerospace Engineering, 1957
- JONES, DILLARD F. Assistant to the Director, Buildings and Grounds, 1966
B.S., Auburn University.
- JONES, HANIEL Assistant to Dean of Engineering, 1958, 1964
B.A., Millsaps College; B.D., Duke University.
- JONES, WILLIAM L. Supervisor, Duplicating Service, 1949, 1959
- JORDAN, EVELYN WALKER Counselor, Student Counseling Service, 1964, 1966
B.A., University of South Carolina; M.A., Auburn University.
- JUMPER, JAMES W., JR. Assistant Campus Forman, Building and Grounds, 1966
- KAPLAN, BARRY N. Administrative Clerk, Army ROTC, 1966
SP5, U.S. Army.
- KENNEDY, DANIEL C. Technician, Learning Resources, 1966
- KENNEDY, MARY JO Dietitian, Plainsman Dining Hall, 1956, 1959
B.S., Auburn University.
- KENT, LESLIE LUCILE Assistant Supervisor of Women's Dormitories, 1966
- KING, LESTER C. Supervisor of Photographic Services, 1949, 1962
- KIRKWOOD, ALICE P. Payroll Accountant, Business Office, 1951, 1959
B.S., Auburn University.
- KLASE, NORMAN N. Personnel Assistant, Personnel Office, 1966
- KNAPP, BYRON S., M.D. Assistant Director of Student Health, 1961
B.S., M.D., Wayne University.
- LEDBETTER, HAROLD O. Engineering Aide, Educational TV, 1963
- LEDBETTER, LOWELL Activities and Foreign Students Adviser, 1964, 1966
B.S., Auburn University; B.D., New Orleans Theological Seminary.
- LEHOTAY, MAYRE Z. Head Resident, Katie Broun Hall, 1966
- LEWIS, ESTHER C. Head Resident of Little Hall, 1962
- LEWIS, HOMER N. Livestock Specialist, Vocational Agriculture, 1954, 1960
B.S., M.S., Auburn University.
- LOCKE, HERBERT L. Air Force ROTC, 1966
M.Sgt., U.S. Air Force.
- LORD, HAROLD F. Commutation Uniform Custodian, Aerospace
Studies, Air Force ROTC, 1961
- LOVVORN, KAYE F. Assistant Editor of The Alumnews, 1965, 1966
B.A., Auburn University.
- LOWE, ROBERT HENRY Assistant Campus Foreman, Buildings and Grounds, 1962
- MAENZA, CAROLINA M. Assistant Head Resident, Auburn Hall, 1965
B.S., Auburn University.
- MAINS, CHARLES Accountant, Business Office, 1965
B.S., Kent State University.
- MARTIN, HELEN N. Editorial Assistant, Engineering Experiment Station, 1962, 1964
B.A., Auburn University.
- MAYFIELD, MARGARET C. Assistant Dietitian, Women's Dining Hall, 1965
B.S., Auburn University.
- MCCARTY, MARY L. Administrative Secretary and Secretary to
Board of Trustees, President's Office, 1961, 1966
- MCCULLERS, GAIL H. Counselor, 1961, 1966
B.S., M.Ed., Auburn University.
- MCCUMMISKEY, S. D. Instructor, Naval Science, 1966
QMC, U.S. Navy.

- McGOWEN, DRUSILLA BOONE..... Assistant Editor, News Bureau,
University Relations, 1962
- McMILLAN, ALBERTA..... Library Assistant, Readers Advisory Service, Library, 1966
A.B., Agnes Scott College; M.A., University of Wisconsin.
- McMILLAN, LOLA C..... Library Assistant, Binding and Receiving Room, 1953, 1962
- MEADOWS, JAMES A..... Laboratory Mechanician, Textile Engineering, 1962
- MIMS, WILLIAM HENRY..... Superintendent of Maintenance and
B.S., Auburn University. Operation, Buildings and Grounds, 1964
- MITCHUM, LILLIAN R..... Library Assistant, Reserve Room, 1961, 1965
- MOBBS, CHARLES ALLAN..... Manager, Magnolia Dormitories, 1965
B.S., Jacksonville State University.
- MOON, BENJAMIN W..... Farm Foreman, Large Animal Surgery and Medicine, 1961
- MOORE, CLARENCE TRUMAN..... Laboratory Mechanician, Mechanical
Engineering, 1962
- MORGAN, DOROTHY F..... Assistant Dietitian, War Eagle Cafeteria, 1962
B.S., Alabama College.
- MULLINS, MARION DEWITT..... Assistant to Dean, School of Chemistry, 1952, 1959
B.S., Auburn University.
- MUSCAT, CHARLES M., JR..... Instructor in Military Science, 1965
SFC, U.S. Army.
- NELSON, CARLTON EUGENE..... Glass Blower, Chemistry, 1958, 1965
- NELSON, L. V. DASSON..... Assistant Processing Mechanician, Textile
Technology, 1963, 1964
- NESMITH, WOODIE R..... Assistant Construction Engineer, Buildings and
Grounds, 1961, 1963
- NORTON, KATHLEEN D..... Head Resident, Hollifield Hall, 1962
- NYBERG, JIM L..... Instructor, Military Science, 1966
S.Sgt., U.S. Army.
- PATTERSON, RAYMOND A..... Senior Laboratory Mechanician, Industrial
Laboratories, 1946, 1961
- PAUL, MARIAN D..... Head Resident, Toomer Hall, 1966
B.A., College of St. Catherine.
- PAULY, BURTON..... Instructor, Naval Science, 1966
MMC, U.S. Navy.
- PEAK, BRUCE L..... Transportation Foreman, Buildings and Grounds, 1960
- PEAK, WILLIAM F..... Mechanical Engineer, Buildings and Grounds, 1964
B.S.I.M., B.S.M.E., Auburn University.
- PHILLIPS, ERNEST A..... Assistant Bursar, Business Office, 1964
B.S., Auburn University.
- POND, ELIZABETH T..... Head Resident, Lupton Hall, 1964, 1965
- POPE, LUTHER M..... Stockroom Supervisor, Buildings and Grounds, 1953, 1959
- POWELL, MRS. CINDERELLA C..... Supervisor of Women's Dormitories,
Dean of Women's Staff, 1947
- PRATHER, MARY M..... Dietitian, Alumni Cafeteria, 1962, 1964
B.S., Auburn University.
- PRYOR, OLLIE CLYDE..... Laboratory Mechanician, Textile Technology, 1960
- PUGH, WILBUR H..... Manager, Small Animal Clinic, 1955, 1966
- PUTNAM, ROBERT F..... Processing Mechanician, Textile Technology, 1959
- QUILLIN, JAMES R..... Manager, Chemistry Supply Store, 1948, 1959
B.S., Auburn University; B.S., Northwestern University.
- RAY, LUTHER G..... Maintenance Custodian, Caroline Draughon Village, 1960, 1965
- RILEY, RHETT E..... Internal Auditor, Business Office, 1963
B.S., Auburn University.

- RODEN, REBECCA HARRIS *Administrative Assistant, Graduate School, 1956, 1962*
B.S., Auburn University.
- ROY, KENNETH B. *Head, Department of Publications, 1943, 1948*
B.J., University of Missouri.
- RUSH, KATHRYN S. *Food Director, Dining Hall Service, 1949, 1951*
B.S., M.S., Auburn University.
- SANDA, FRANCIS M. *Ticket Clerk-Accountant, Athletic Department, 1964*
B.S., Auburn University.
- SELLERS, LEWIS L. *Assistant Supervisor of Vocational Agriculture, 1937, 1958*
B.S., M.S., Auburn University.
- SIBLEY, GRIGSBY THOMAS, JR. *Electronics Technician, Electrical Engineering, 1943, 1961*
- SILAVENT, EVIE *Head Resident of Mell Hall, 1958, 1962*
- SIMMONS, ELDRIDGE C., M.D. *Assistant Director of Student Health, 1960*
B.S., M.D., University of Virginia.
- SIMS, BENNETT *Store Manager, University Bookstore, 1946, 1947*
- SIMS, MARVIN W. *Instructor in Naval Science, 1965*
- SINCLAIR, MARIAN J. *Programmer, Computer Center, 1966*
B.S., M.S., Auburn University.
- SMITH, DOROTHY B. *Assistant Dietitian, Food Service, 1966*
B.S., M.A., Middle Tennessee State University.
- SMITH, IVERSON T. *Assistant Carpenter Foreman, Buildings and Grounds, 1957*
- SMITH, LEROY W. *Instructor in Military Science, 1965*
B.A., Bowdoin College, SFC, U.S. Army.
- SMITH, MARIAN B. *Head Resident, Dowdell Hall, 1966*
- SMYTH, HENRY A. *Maintenance Mechanic, Buildings and Grounds, 1959, 1960*
- SNOW, MELVIN L. *Janitor Foreman, Buildings and Grounds, 1951, 1957*
- STALLWORTH, TOM A. *Assistant to the Dean, Science and Literature, 1965, 1966*
B.S., M.B.A., Auburn University.
- STABLER, NORA DEAN *Assistant Dietitian, Magnolia Dining Hall, 1965*
A.B., Huntingdon College.
- STEWART, ROBBIE *Head Resident, Knapp Hall, 1966*
B.F.A., Phillips University.
- STIFF, GILBERT RAY, SR. *Construction Inspector, Buildings and Grounds, 1964, 1966*
- STONE, WILLIAM F. *Instructor, Military Science, 1966*
SFC, U.S. Army.
- STORY, ELEANOR *Head Resident of Graves Hall, 1965*
- STRONG, HOWARD *Assistant to the Dean for Pre-Engineering, 1947, 1960*
B.S., M.S., Auburn University; Ed.D., Columbia University.
- STRONG, ROBERT BRYANT *Assistant Director, Student Financial Aid, 1962*
B.S., M.S., Auburn University.
- SUBLETT, PEARL S. *Dietitian, Magnolia Dining Hall, 1961*
B.S., Alabama College; M.S., Auburn University.
- SUGG, ETHEL J. *Assistant to the Dean, Dean of Women, 1957, 1966*
B.S., M.E., Auburn University.
- SUGG, TOT C. *Housemother, Magnolia Dormitories, 1957, 1962*
- SUGG, WILLIAM C. *Assistant to Dean, Pharmacy, 1966*
B.S., Auburn University.
- TAYLOR, EDWARD B. *Adviser to Fraternities, Student Affairs, 1957, 1967*
B.S., Davidson College; B.S., North Carolina State University; M.A., Columbia University, Ph.D., University of Nebraska.
- TAYLOR, WILKA B. *Supervisor Campus Mail Service, Buildings and Grounds, 1952, 1965*
- THOMAS, ROBERT F. *Instructor in Military Science, 1964*
SFC, U.S. Army.

- THURSTON, MILTON C. *Equipment and Plant Manager, Athletics*, 1946, 1950
- TIPPINS, FRANCES E. *Financial Assistant, Agriculture Administration*, 1929, 1966
- TUCKER, INEZ JONES *Head Dietitian, Food Service*, 1952, 1955
B.S., Auburn University.
- TURNER, MICHAEL D. *Maintenance Mechanic, Buildings and Grounds*, 1965
- TURNIPSEED, LAMARGARET *Head of Women's Housing*, 1947, 1952
B.A., Huntingdon College; M.S., Auburn University.
- TYLER, VICTOR A., JR. *Maintenance Supervisor, Educational TV*, 1965
- VANDERGRIFF, FRANK *Director, Co-operative Education, Engineering Extension Service*, 1964, 1966
B.M.E., Georgia Institute of Technology; M.A., Columbia Theological Seminary.
- VAN GILDER, SARAH ELLEN *Dietitian, Food Service, Alumni Dining Hall*, 1960
B.S., Auburn University.
- WALDROP, RUTH C. *Assistant Purchasing Agent, Business Office*, 1928, 1937
- WALKER, EDWARD EARL *Systems Programmer, Computer Center*, 1962, 1964
B.S.C.E., Auburn University.
- WALKER, JOE MARTIN *Administrative Assistant to Dean of Engineering*, 1966
- WALTON, JOHN H. *Carpenter Foreman, Buildings and Grounds*, 1947
- **WARE, ROBERT ELMORE *Chief Engineer, Educational TV*, 1957, 1959
B.S., Auburn University.
- WARREN, LUCY *Head Resident of Dobbs Hall*, 1965
- WATSON, GENE J. *High School Relations and Pre-College Counseling Officer*, 1966
B.S., M.A., University of Alabama.
- WEBSTER, MARGARET NUNN *Dietitian, Women's Dining Hall*, 1960
B.S., Auburn University.
- WESTBERRY, C. JACK *Assistant Director, Cooperative Education, Engineering Extension Service*, 1964, 1966
B.S., M.S., Georgia Institute of Technology.
- WHEELER, JOHN B. *Personnel and NESEP Yeoman, Naval Science*, 1963
- WHITE, ROBERT W., SR. *Instructor, Military Science, ROTC*, 1966
S.Sgt., U.S. Army.
- WHITMAN, J. M. *Mechanical Foreman, Buildings and Grounds*, 1940
- WHITELAW, ELEANOR *Producer-Director, Educational Television*, 1966
B.S., Auburn University.
- WHITMAN, JESSIE C. *Assistant Campus Foreman, Buildings and Grounds*, 1952, 1959
- WILDER, ELIZABETH S. *Head Resident of Lane Hall*, 1929, 1962
- WILKINS, MARTHA W. *Head Resident of Owen Hall*, 1965
- WILKINSON, BESSIE B. *Housemother, Magnolia Dormitories*, 1962, 1963
- WILLIAMS, DUDLEY O. *Program Manager, Educational Television*, 1966
B.A., University of Kentucky.
- WILLIAMS, L. B. *Editor, University Publications, University Relations*, 1956, 1962
B.S., Troy State College; M.S., Peabody College.
- WILLIAMSON, E. E. *Education Training Specialist, Air Force ROTC*, 1966
A1C, U.S. Air Force.
- WILLIS, WOODROW *Assistant Mechanical Foreman, Buildings and Grounds*, 1963, 1966
- WILSON, JACK O., JR. *Campus Foreman, Buildings and Grounds*, 1947, 1953
- WILSON, VERNA M. *Head Resident of Alumni Hall*, 1960
- WINGATE, HENRY T. *Assistant to the Dean, Veterinary Medicine*, 1927, 1959
B.S., Auburn University.
- WINSTEAD, ERNEST G. *NCOIC Cadet Records, Air Force ROTC*, 1965

- WOOD, BILLIE RUTH.....Senior Library Assistant, Library, 1965, 1966
B.S., Auburn University.
- WRIGHT, CARY DUNCAN.....Property Custodian, Large Animal Surgery
and Medicine, 1948, 1955
- WRIGHT, LUNEAR D., R.N.....Superintendent of Nurses, Drake Infirmary, 1941, 1950
- YARMAN, CHARLES J.....Instructor in Military Science, 1965
1st Sgt., U.S. Army.
- YEAMAN, JAMES.....Radio and Television Editor, University Relations, 1966, 1967
B.A., Auburn University.
- YOUNG, JOE FRANK.....Laboratory Mechanician, Mechanical Engineering, 1960

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 C. F. SIMMONS, B.S., M.S., Ph.D., *Assistant Director*
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Agricultural Economics and Rural Sociology

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 BLACKSTONE, J. H. *Professor, 1938, 1953*
 B.S., M.S., Auburn University.
 DANNER, M. J. *Professor, 1943, 1957*
 B.S., Texas Technological College; M.S., University of Tennessee.
 WHITE, MORRIS *Professor, 1950, 1960*
 B.S., Auburn University; M.S., Ph.D., Purdue University.
 BELL, S. C. *Associate Professor, 1956, 1965*
 B.S., M.S., Auburn University; Ph.D., Michigan State University.
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 B.S., Murray State College; M.S., University of Kentucky; Ph.D., University of Illinois.
 DUNKELBERGER, J. E. *Assistant Professor, 1962*
 A.B., Franklin and Marshall College; M.S., Pennsylvania State University; Ph.D., Mississippi State University.
 GLOVER, R. S. *Assistant Professor, 1965*
 B.S., Austin Peay State College; M.S., Auburn University; Ph.D., Texas A. & M. University.
 MILLER, B. R. *Assistant Professor, 1959, 1963*
 B.S., M.S., Auburn University; Ph.D., North Carolina State University.
 DRISCOLL, L. S. *Instructor, 1965*
 B.S., M.S., Auburn University.
 HAMMETT, RUTH A. *Instructor, 1955*
 B.S., M.S., Auburn University.
 HURST, J. R. *Instructor, 1959, 1965*
 B.S., M.S., Auburn University.

Agricultural Engineering

KUMMER, F. A. *Head of Department (P.E.), 1935, 1948*
 B.S., M.S., Auburn University.
 DUMAS, W. T. *Associate Professor (P.E.), 1946, 1962*
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 KIRK, I. W. *Research Agricultural Engineer (Coop. USDA), 1965, 1966*
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 RENOLL, E. S. *Associate Professor (P.E.), 1949, 1958*
 B.S., Auburn University; M.S., Iowa State University.
 ROLLO, C. A. *Associate Professor (P.E.), 1947, 1956*
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 STOKES, C. M. *Associate Professor (P.E.), 1937, 1947*
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 HENDRICK, J. C. *Assistant Professor (P.E.), 1962*
 B.S.M.S., Auburn University; Ph.D., Michigan State University.
 HERMANSON, RONALD E. *Assistant Professor, 1966*
 B.S., M.S., Ph.D., Iowa State University.
 BROWNING, VIRGIL D. *Instructor, 1966*
 B.S., Auburn University.
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 B.S., Auburn University.
 SMITH, D. M. *Agricultural Engineering Field Superintendent, 1962*
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- LABSON, L. W. *Agricultural Engineer (Coop. USDA), 1965*
B.S., University of Idaho; M.S., University of Minnesota; Ph.D., Iowa State University.
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B.S., University of California; M.S., University of California, Davis; Ph.D., University of Hawaii.
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- Agronomy and Soils**
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B.S., Auburn University.
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- LUND, ZANE F. *Soil Scientist (Coop. USDA), 1962*
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- HOVELAND, CARL S. _____ Associate Professor, 1959
B.S., M.S., University of Wisconsin; Ph.D., University of Florida.
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B.S., Wake Forest College; B.S., M.S., North Carolina State University; Ph.D., Cornell University.
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B.S., Auburn University.
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B.S., Auburn University.
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B.S., Auburn University.
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Animal Disease Research

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Animal Science

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Botany and Plant Pathology

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B.A., Miami University (Ohio); M.A., Harvard University; Ph.D., North Carolina State University.
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Dairy Science

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Forestry

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- BEALS, HAROLD O. *Assistant Professor, 1960*
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B.S., University of Cincinnati; M.F., Yale University.
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Home Economics

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Horticulture

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- SANDERSON, KENNETH C. *Assistant Professor, 1966*
B.S., Cornell University; M.S., Ph.D., University of Maryland.
- DOZIER, WILLIAM A. *Instructor, 1965*
B.S., M.S., Auburn University.
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Poultry Science

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Publications

- WHITE, J. HERBERT _____ Director, University Relations, 1960, 1966
B.S., Auburn University.
- ROY, KENNETH B. _____ Head of Department, 1943, 1948
B.J., University of Missouri.
- MCGRAW, E. L. _____ Associate Editor, 1941, 1957
B.S., M.S., Auburn University.
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Research Data Analysis

- PATTERSON, R. M. _____ Associate Professor, 1949, 1964
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Zoology-Entomology

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B.S., M.S., Auburn University; Ph.D., Iowa State University.
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B.S., M.S., Iowa State University; Ph.D., University of Kansas.
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B.S., Troy State College; M.S., Ph.D., Auburn University.
- BOYD, CLAUDE E. _____ Assistant Professor, 1967
B.S., M.S., Mississippi State University; Ph.D., Auburn University.
- CANERDAY, T. DON _____ Assistant Professor, 1963, 1967
B.S., M.S., Ph.D., Auburn University.
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B.Sc., Purdue University; Ph.D., University of California.

FIJAN, NICHOLA	Visiting Assistant Professor, 1966
M.A., D.Sc., University of Zagreb.	
GREENE, GEORGE N.	Assistant Professor, 1963, 1964
B.A., Rice University; M.S., University of Michigan; Ph.D., Auburn University.	
SPEAKE, DAN W.	Assistant Leader, Wildlife Research Unit, 1955
B.S., M.S., Auburn University.	
BECKERT, HEINO	Instructor, 1964, 1967
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JOHNSON, A. S., III	Instructor, 1963, 1965
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ROGERS, W. A.	Instructor, 1964
B.S., Mississippi Southern University; M.S., Auburn University.	
SWINGLE, WAYNE E.	Instructor, 1966
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SUBSTATIONS AND FIELDS

Black Belt—Marion Junction, Dallas County

SMITH, L. A.	Superintendent, 1951, 1957
B.S., Auburn University.	
GRIMES, HAROLD W., JR.	Assistant Superintendent, 1955, 1957
B.S., M.S., Auburn University.	

Chilton Area Horticulture—Clanton, Chilton County

CARLTON, C. C.	Superintendent, 1948
B.S., Auburn University.	
SHORT, KENNETH C.	Assistant Superintendent, 1960
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Gulf Coast—Fairhope, Baldwin County

YATES, HAROLD F.	Superintendent, 1931, 1959
B.S., Auburn University.	
BARRETT, J. E., JR.	Assistant Superintendent, 1948
B.S., Auburn University.	

Lower Coastal Plain—Camden, Wilcox County

BROWN, V. L.	Superintendent, 1949
B.S., Mississippi State University.	
FOWLER, WILLIAM E.	Assistant Superintendent, 1965
B.S., Berry College.	
WATSON, W. J.	Assistant Superintendent, 1958
B.S., Auburn University.	

North Alabama Horticulture—Cullman, Cullman County

HOLLINGSWORTH, M. H.	Superintendent, 1958, 1962
B.S., Auburn University.	

Piedmont—Camp Hill, Tallapoosa County

MAYTON, E. L.	Superintendent, 1929, 1945
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Sand Mountain—Crossville, DeKalb County

GISSENDANNER, S. E.	Superintendent, 1941, 1946
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Tennessee Valley—Belle Mina, Limestone County

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Upper Coastal Plain—Winfield, Fayette County

COTNEY, W. W. _____ Superintendent, 1944
B.S., Auburn University.MOORE, ROBERT A., JR. _____ Assistant Superintendent, 1959
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Wiregrass—Headland, Henry County

BROGDEN, C. A. _____ Superintendent, 1937, 1950
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Ornamental Horticulture Field Station—Spring Hill, Mobile County

SELF, R. L. _____ Plant Pathologist, 1942, 1952
B.S., M.S., Auburn University; Ph.D., University of Wisconsin.SMITH, CHARLES E. _____ Assistant Superintendent, 1966
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Alexandria Field—Calhoun County

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Brewton & Monroeville Fields—Escambia & Monroe Counties

RICHARDSON, J. W. _____ Superintendent (Brewton), 1937, 1948
B.S., Auburn University.

Prattville & Tuskegee Fields—Autauga & Macon Counties

BERTRAM, F. E. _____ Superintendent (Prattville), 1935, 1948
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OTHER STAFF

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BARNETT, JOHN W. _____ Chemical Analyst, Zoology-Entomology, 1966
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COLLUM, DOVARD R. _____ Technical Assistant, Agronomy and Soils, 1957

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FLANAGAN, CORNELIA S. _____ Senior Laboratory Technician, Poultry Science, 1942, 1961

FLANAGAN, GEORGE D. _____ Plant Manager, Dairy Science, 1935

GARDNER, DORIS E. _____ Senior Clerk, Poultry Science, 1949, 1965

GARRETT, FRANK _____ Assistant in Horticulture (Gulf Coast Substation
at Fairhope), 1943

GOLDEN, CYRIL T. _____ Maintenance Custodian, Animal Disease Research, 1965

GRAY, CLIFTON B. _____ Assistant Farm Foreman, Dairy Science, 1966

HEARN, WILLIAM H. _____ Systems Analyst, 1950, 1963
B.S., Auburn University.HIGGINS, J. H. _____ Production Manager (Foundation Seed Stocks Farm
at Thorbsy), Agronomy and Soils, 1963

HORNE, ELEANOR _____ Senior Clerk, Agronomy and Soils, 1922, 1959

HUNTER, ROBERT C. _____ Technical Assistant, Zoology-Entomology, 1960, 1962
B.S., Auburn University.

JONES, JAMES R. _____ Meats Laboratory Manager, Animal Science, 1962, 1966

JONES, LESLIE J. _____ Farm Foreman, Agronomy and Soils, 1959

JONES, W. G. _____ Assistant Plant Manager, Dairy Science, 1937

LANCASTER, MAYO.....	<i>Assistant Foreman, Dairy Science, 1952, 1957</i>
MARTIN, LYNDON M., JR..... B.S., University of Alabama.	<i>Chemical Analyst, Agronomy and Soils, 1966</i>
MATHISON, M. C.....	<i>Farm Foreman, Dairy Science, 1942, 1957</i>
MCCAIN, JASPER T.....	<i>Technical Assistant, Horticulture</i>
McHARGUE, PETE.....	<i>Technical Assistant, Agronomy and Soils, 1963</i>
McMURTRY, BETTY.....	<i>Administrative Aide (Coop. USDA), Agronomy and Soils, 1960, 1966</i>
PARR, HENRY W.....	<i>Assistant Farm Foreman, Poultry Science, 1965</i>
SIMPSON, BRUCE.....	<i>Electronics Technician, Agricultural Engineering, 1966</i>
TIPPINS, FRANCES E.....	<i>Financial Assistant, Administration, 1929, 1966</i>
VAUGHT, JAMES V.....	<i>Machinist, Agricultural Engineering, 1966</i>

COOPERATIVE EXTENSION SERVICE STAFF

HARRY M. PHILPOTT, A.B., Ph.D., D.D., LL.D., *President*

- Fred R. Robertson, Jr., B.S., M.S., University of Tennessee; Dr.P.A. Harvard University—Vice President for Extension and Director of Cooperative Extension Service, 1959, 1966
- Ralph R. Jones, B.S., Auburn University; M.S., Michigan State University—Associate Director, 1936, 1962
- W. H. Taylor, B.S., Auburn University; M.S., Ed.D., Cornell University—Assistant Director, 1946, 1965
- Hoyt M. Warren, B.S., Auburn University; M.S., Ed.D., Cornell University—Assistant Director, 1945, 1965
- Mary E. Coleman, B.S., Auburn University; M.A., Columbia University—Assistant Director for Women's Work, 1936, 1965
- W. B. Hill, B.S., Tuskegee Institute; M.S., Cornell University; Ph.D., University of Wisconsin—Assistant to the Director, 1935, 1965
- R. M. Reaves, B.S., Auburn University—Assistant to the Director, Field Service, 1927, 1962
- H. Earle Williams, A.B., Birmingham-Southern College—Head, Management Service, 1945, 1960
- Robert C. Horn, B.S., Auburn University; M.S., University of Wisconsin—Assistant Head, Management Service, 1944, 1965
- J. Herbert White, B.S., Auburn University—Director of University Relations, 1960, 1966

SUPERVISORS

- John C. Bullington, B.S., Auburn University—District Extension Chairman, 1939, 1965
- S. L. Davis, B.S., Auburn University; M.S., Cornell University—District Extension Chairman, 1942, 1965
- T. W. Lumpkin, B.S., Auburn University—District Extension Chairman, 1934, 1965
- Geo. D. H. McMillan, B.S., Auburn University—District Extension Chairman, 1942, 1965
- Robert F. Jones, B.S., Tuskegee Institute—District Farm Agent, 1949, 1966
- Clarence H. McDaniel, B.S., Alabama A.&M. College—District Farm Agent, 1952, 1965
- Mary Hulsey, B.S., Auburn University; M.A., Columbia University—Associate District Extension Chairman, 1941, 1965
- Eunice Ivey, B.S., Alabama College; M.S., University of Alabama—Associate District Extension Chairman, 1949, 1965
- Lucile Mallette, B.S., Auburn University; M.S., University of Minnesota—Associate District Extension Chairman, 1936, 1965
- Patty Parkman, B.S., Alabama College—Associate District Extension Chairman, 1947, 1965
- Ruth L. Rivers, B.S., Tuskegee Institute; M.A., Columbia University—District Home Agent, 1937, 1965
- Cleo S. Walker, B.S., M.S., Tuskegee Institute—District Home Agent, 1958, 1965

DIVISION CHAIRMEN

- A. R. Cavender, B.S., M.S., University of Tennessee; Ph.D., University of Wisconsin—Chairman, Resource Use Division, 1958, 1965
- R. R. Chesnutt, B.S., Auburn University—Chairman, Extension Information, 1941, 1965
- John Warren Gossett, B.S., University of Tennessee; M.S., Ph.D., Texas A.&M. University—Chairman, Animal Science Division, 1962
- Thomas Benjamin Hagler, B.S., M.S., Auburn University; Ph.D., University of Maryland—Chairman, Plant Science Division, 1960

SPECIALISTS

Thomas R. Agnew, B.S., M.Ed., Tuskegee Institute	4-H Club Specialist, 1935, 1965
O. N. Andrews, B.S., M.S., Auburn University	Agronomist, 1942, 1955
Joe Bates Armstrong, B.S., Mississippi State University; M.S., Oklahoma State University; Ph.D., Colorado State University	Animal Husbandman, 1964
John Bagby, B.S., Virginia Polytechnic Institute	Specialist in Commercial Horticulture, 1944, 1949
G. Talmadge Balch, B.S., M.Ag., Auburn University	Specialist in Pesticide Education, 1965
Ralph J. Ballew, B.S., Auburn University; M.S., Michigan State University	Visual Editor, 1954, 1961
Ann Barr, B.S., Alabama College	State 4-H Club Leader for Girls, 1945, 1950
*Charles C. Baskin, B.S., M.Ag., Auburn University	Specialist in Pesticide Education, 1965
Vernon C. Bice, B.S., M.S., Auburn University	Radio & TV Editor, 1958, 1964
M. D. Bond, B.S., M.S., Auburn University	Peanut and Soybean Specialist, 1955, 1960
A. J. Brown, B.S., M.S., Auburn University	Specialist in Marketing, 1948, 1963
Elizabeth Bryan, B.S., Auburn University; M.S., University of Tennessee	Economist, Home Management, 1939, 1957
James A. Buford, Jr., B.S., M.S., Auburn University	Forest Products Marketing and Utilization Specialist, 1965, 1966
Walter K. Cheney, B.A.A., Auburn University	Art Editor, 1958, 1962
Robert R. Clark, B.S., M.S., Auburn University	Specialist in Recreation, 1954, 1965
Elmer George Close, B.S.A., M.S., University of Florida; Ph.D., University of Florida	Specialist in Horticulture Marketing, 1965
Kenneth J. Copeland, B.S., Auburn University	News Editor, 1957, 1960
James Richard Danion, B.S., M.S., University of Georgia	Animal Husbandman, 1960, 1965
Cecil G. Davis, B.S., M.Ag., Auburn University	District Program Specialist, 1948, 1966
Richard E. Deese, B.S., M.S., Mississippi State University; Ph.D., University of Florida	Animal Husbandman, 1965
Ray Dickens, B.S., University of Arkansas; M.S., Ph.D., Auburn University	Specialist in Weed Control, 1965
Isabelle Downey, B.S., Auburn University; M.S., University of Georgia	Specialist in Food Preservation, 1944, 1958
Samuel M. Eich, Jr., B.S., Auburn University	Specialist, Rural Resource Development, 1957, 1962
John Elliott, Jr., B.S., M.Ag., Auburn University	Specialist, Pesticide Education, 1953, 1966
Lawrence Ennis, B.S., Auburn University	(P.E.), Specialist in Soil Engineering, 1945, 1949
Luther L. Farrar, B.S., Centenary College; M.S., Ph.D., Louisiana State University	Specialist in Plant Pathology and Nematology, 1966
Barbara A. Fite, B.S., Alabama College; M.S., University of Alabama	Specialist, Child Care and Family Life, 1956, 1966
J. T. Gaillard, B.S., Auburn University	(P.E.), Specialist in Farm Mechanization, 1944, 1949
Joe P. Givhan, B.S., Auburn University	Specialist, Rural Resource Development, 1935, 1963
M. R. Glasscock, B.S., Auburn University	Specialist in Fruits and Vegetable Marketing, 1941, 1962
Albert C. Heaslett, B.S., Auburn University; M.S., University of Tennessee	Specialist, Tributary Area Development, 1957, 1963
*J. B. Henderson, B.S., M.S., Auburn University	Specialist in Cotton, 1960, 1963

* On study leave.

- Thomas W. High, Jr., B.S., University of Florida; M.S., Ph.D., University of Tennessee Extension Animal Husbandman
- *J. R. Hubbard, B.S., Auburn University; M.S., Cornell University Specialist in Poultry, 1939, 1960
- *John M. Huie, B.S., M.S., Auburn University Specialist, Rural Resource Development, 1962
- Paul O. Johnson, B.S., M.Ag.Ed., Auburn University Specialist, Rural Resource Development, 1959, 1965
- Bertha Mae Jones, B.S., Alabama A.&M. College; M.Ed., Pennsylvania State University 4-H Club Specialist, 1945, 1965
- R. S. Jones, Jr., B.S., Auburn University Dairyman, 1941, 1959
- E. F. Kennamer, B.S., M.S., Auburn University Specialist in Wildlife, 1940, 1960
- Worth Lanier, B.S., Mississippi State University; D.V.M., Auburn University Extension Veterinarian, 1960
- *Roy J. Ledbetter, B.S., M.S., Auburn University Entomologist, 1954, 1962
- James Gordon Link, B.S., M.S., Auburn University Agronomist, 1959, 1963
- Daniel A. Linton, Jr., B.S., M.S., Auburn University Specialist in Livestock Marketing, 1962
- Robert H. Loe, B.S., M.S., University of Arkansas Agronomist-Seed, 1966
- H. E. Logue, B.S., M.Ag.Ed., Auburn University State 4-H Club Leader, 1942, 1948
- Houston Frank McQueen, B.S., Auburn University Survey Entomologist, 1963
- Bobby Jack Maddox, B.S., Auburn University Assistant Art Editor, 1966
- C. L. Maddox, B.S., M.S., Auburn University Specialist in Farm Management, TVA, 1954, 1960
- Herman H. Marks, B.S., M.Ag., Auburn University District Program Specialist, 1954, 1963
- Johnnie A. Marable, B.S., M.S., Auburn University District Program Specialist, 1955, 1966
- M. Cecil Mayfield, B.S., Auburn University 4-H Editor, 1955, 1966
- J. Glenn Morrill, B.S., Brigham Young University; M.S., Utah State University; Ed.D., Cornell University Specialist in Extension Training & Development, 1960
- Dorothy Overbey, B.S., University of Tennessee Specialist in Consumer Education, 1943, 1949
- Carl Parker, B.S., Auburn University Specialist, Rural Resource Development, 1944, 1961
- J. R. Parrish, B.S., M.S., Auburn University Dairyman, 1938, 1948
- John L. Parrott, B.S., M.Ag.Ed., Auburn University News Editor, 1959, 1961
- Alice Peavy, B.S., University of Alabama; M.A., Columbia University Economist, Home Furnishings, 1941, 1959
- James H. Pitts, B.S., M.S., Mississippi State University Specialist, Livestock Production, TVA, 1955, 1965
- Fariss Prickett, B.S., M.S., Auburn University Specialist in Foods and Nutrition, 1955, 1958
- Jeanne Priester, B.S., Alabama College; M.S., Auburn University Specialist in Educational Methods, 1958, 1964
- Larry W. Roberts, B.S., M.S., Auburn University Specialist, Farm Management, TVA, 1960, 1965
- Charles H. Segrest, B.S., M.S., Auburn University Specialist, Rural Resource Development, 1956, 1962
- Ralph L. Sherer, B.S., Auburn University; M.S., Cornell University Specialist, Rural Civil Defense, 1956, 1963
- Daniel Bruce Smith, B.S., Auburn University; M.S., University of Tennessee Specialist, Farm Management, 1965
- Jack D. Smith, B.A., Auburn University News Editor, 1962
- Perry M. Smith, B.S., Clemson University; M.S., North Carolina State University Specialist in Commercial Horticulture, 1966

* On study leave.

** On leave.

Walter F. Sowell, B.S., M.S., Auburn University; Ph.D., Purdue University	Soils Specialist, 1948, 1960
Genta S. Speakman, B.S., M.S., Auburn University	Specialist, Housing and Equipment, 1966
Cleveland U. Storey, B.S., Auburn University; M.Ag., University of Florida	Specialist, Rural Resource Development, 1965
*Willie Lee Strain, B.S., M.Ed., Tuskegee Institute	Assistant Editor, 1955, 1965
Elmer Oscar Strickland, B.S., M.Ag.Ed., Auburn University	District Program Specialist, 1960, 1963
Robert N. Terrell, B.S., University of Oklahoma; M.S., University of Tennessee	Specialist in Food Science, 1966
Charles F. Thomas, B.S., M.S., Auburn University	Specialist in Poultry, 1958, 1966
Kathleen Thompson, B.S., University of Alabama; M.S., Pennsylvania State University	Specialist in Clothing & Handicraft, 1944, 1952
H. B. Thornhill, B.S., Auburn University; M.S., Clemson University	Marketing Specialist in Ornamental Horticulture, 1941, 1961
Nancy Thornton, B.S., Auburn University	Assistant Specialist, Educational Methods, 1966
Macon B. Tidwell, B.S., M.Ag., Auburn University	Specialist, Rural Resource Development, 1957, 1961
Larkin H. Wade, B.S., M.S., Auburn University	Extension Forester, 1965
Don Walters, B.S., Auburn University	Management Specialist, 1961, 1962
Harold Watson, B.S., M.S., Louisiana State University	Specialist in Agricultural Engineering, 1966
Bobby Leroy Whittenburg, B.S., M.S., University of Tennessee	4-H Livestock Specialist, 1965
William R. Williams, B.S., Auburn University; M.S., University of Tennessee	Test Demonstration Supervisor, 1946, 1962
William E. Wilson, B.S., M.Ag., Auburn University	Specialist, Rural Resource Development, 1954, 1961
William F. Wood, B.S., M.S., Auburn University	Specialist, Public Affairs and Resource Management, 1966

OTHER STAFF

Grace F. Brown	Administrative Assistant, 1958, 1966
Charlotte DuPriest, B.A., Auburn University	Editorial Assistant, 1966
Myrtle L. Good	Administrative Assistant, 1929, 1966
Dalene Jeter	Administrative Assistant, 1928, 1966
Rennie Jeter	Business Assistant, 1934, 1947
Jacquelyn E. Magill, B.S., Auburn University	Editorial Assistant, 1966
Georgiana Strickland, A.B., Middlebury College	Editorial Assistant, 1966
Judith Bond Walters	Editorial Assistant, 1966

* On study leave.

COUNTY STAFFS

(List for each county as follows: County Address, county extension chairman, extension farm agent; associate county extension chairman, extension home agent; first appointment, present appointment. All degrees are from Auburn University unless otherwise indicated.)

- AUTAUGA**
Prattville R. H. Kirkpatrick, B.S., 1944, 1965; Jerry A. Green, B.S., Tuskegee Institute, 1954, 1965; Max F. Scott, B.S., 1962-1965.
Margaret Campbell, B.S., Alabama College; M.S., University of Tennessee, 1950, 1965; Louvenia A. Lee, B.S., Tuskegee Institute, 1955, 1965.
- BALDWIN**
Bay Minette F. C. Turner, B.S., 1938, 1965; W. H. Johnson, B.S., 1934, 1965; Donald Eugene Dunn, B.S., 1962, 1965; Edward J. Coats, B.S., Western Kentucky State University; M.S. 1966.
Mary C. Silvey, B.S., 1955, 1965; Eugenia Small, B.S., 1937, 1965; Marvell Gwaltney, B.S., University of Alabama, 1959, 1965.
- BARBOUR**
Clayton J. W. Walton, B.S., 1946, 1965; William H. Lindsey, B.S., Tuskegee Institute, 1966; Roger T. Traywick, B.S., 1966.
Marilyn Dees Bennett, B.S., 1964, 1965; Tommie W. Clark, B.S., Tuskegee Institute, 1940, 1965; Carol L. Tinsley, B.S., 1966.
- BIBB**
Centreville J. C. Odom, B.S., 1935, 1965; T. W. Camp, B.S., 1951, 1965.
Kirtis Martin, B.S., 1933, 1965; Betty F. Brooks, B.S., University of Tennessee, 1966.
- BLOUNT**
Oneonta D. S. Loyd, B.S., M.Ag., 1942, 1965; J. B. Butler, B.S., 1954, 1965; L. C. McCall, B.S., 1955, 1965.
Mildred Gilbert, B.S., M. of H. Ec., 1944, 1965; Patricia Williams, B.S., Jacksonville State University, 1964, 1965.
- BULLOCK**
Union Springs W. E. Stone, B.S., M.Ag., 1947, 1965; William Wright Curtis, B.S., 1963, 1965; Yarbrough C. Nance, B.S., Alabama A. & M. College, 1950, 1965.
Carolyn Henderson, B.S., 1941, 1965; Nannie S. Rhodes, B.S., Southern University, 1959, 1965.
- BUTLER**
Greenville F. H. Morgan, B.S., 1946, 1965; J. P. Moore, B.S., 1953, 1965; Jacob H. Ross, B.S., Tuskegee Institute, M.A., Michigan State University, 1950, 1965; R. C. Thompson, B.S., 1954, 1965.
Laurine Howell, B.S., University of Alabama, 1949, 1965; Bernice Gail Stokes, B.S., Harding College, 1965.
- CALHOUN**
Anniston A. S. Mathews, B.S., 1941, 1965; Goode Nelson, A.B., University of Alabama, 1945, 1965; L. G. Pair, B.S., M.Ag., 1948, 1965; John D. Sellers, B.S., 1949, 1966.
Shirley Ann Harrison, B.S., 1961, 1965; Catherine F. Bragg, B.S., University of Alabama, 1964, 1966; Sylvia Ruth Ruffin, B.S., University of Alabama, 1965.
- CHAMBERS**
LaFayette E. L. Stewart, B.S., M.S., 1944, 1965; Larry D. Easterwood, B.S., 1961, 1965; Willie Lawson, B.S., Alabama A. & M. College, M.Ed., 1947, 1965.
Exa Till, B. S., 1946, 1965; Mary Frances Griggs, B.S., Alabama A. & M. College, 1965; Judith Latimer, B.S., Alabama College, 1965.
- CHEROKEE**
Centre J. J. Young, B.S., M.S., 1933, 1965; Charles R. Moody, B.S., 1964, 1965; F. M. Patterson, B.S., M.S., University of Tennessee, 1954, 1965.
Geneva Marshall James, B.S., 1941, 1965; Virginia Garmon, B.S., Alabama College, 1945, 1965.
- CHILTON**
Clanton W. R. Futral, B.S., M.Ag., 1959, 1965; D. R. Mims, B.S., 1953, 1965.
Mrs. Johnnie Lane, A.B., Judson College, 1952, 1965; Margaret Chapman, B.S., University of Florida, 1966.

- CHOCTAW**
Butler Mathew Sexton, B.S., 1937, 1965; Joseph T. Banks, B.S., M.Ed., Tuskegee Institute, 1947, 1965; R. B. Deavours, B.S., 1946, 1965. Grace M. Prince, B.S., 1965; Gladys A. Horne, B.S., Tuskegee Institute, 1950, 1965; Lera H. Manley, B.S., University of Southern Mississippi, 1964, 1965.
- CLARKE**
Grove Hill O. C. Helms, B.S., 1930, 1965; Howard N. Reynolds, B.S., M.A., 1962, 1965. Virginia B. Hardenbergh, B.S., 1960, 1965; Marcia V. Simpson, B.S., Howard College, 1963, 1965.
- CLAY**
Ashland W. H. Cowan, B.S., 1936, 1965; Loyd P. Owens, B.S., M.S., 1954, 1965. Dora-grace Smith, B.S., Alabama College, 1952, 1965.
- CLEBURNE**
Heflin T. A. Ventress, B.S., 1937, 1965; E. C. Farrington, B.S., 1941, 1965. Annie Rae Milner, B.S., Alabama College, 1941, 1965; Julia F. Wilson, B.S., Alabama College, 1963, 1965.
- COFFEE**
Enterprise T. C. Casaday, B.S., M.Ag., 1949, 1965; Dan J. Presley, B.S., 1964, 1966; J. R. Speed, 1943, 1965. Sarah Hutchinson, B.S., Howard College, M.S., 1956, 1965; Virginia E. Sanders, B.S., 1964, 1965.
- COLBERT**
Tuscumbia D. G. Somerville, B.S., 1939, 1965; Dallas Holloway, Jr., B.S., 1964, 1965; B. T. Richardson, B.S., 1945, 1965; Daniel R. Salter, B.S., M.S., Tuskegee Institute, 1949, 1965. Christa Hall, B.S., University of Alabama, 1950, 1965; Betty Carolyn Davis Moore, B.S., 1963, 1965; Elizabeth S. Stough, B.S., Alabama A. & M. College; M.Ed., Tuskegee Institute, 1946, 1965.
- CONECUH**
Evergreen M. H. Huggins, B.S., 1936, 1965; George W. Jackson, B.S., M.S., Tuskegee Institute, 1966; H. J. Oakley, B.S., 1954, 1965; Gerthen E. Williams, B.S., 1961, 1965. Louise T. Ostrum, B.S., M.S., 1957, 1965; Hazel H. Harpe, B.A., Judson College, 1961, 1965; Mozell J. Peagler, B.S., Alabama A. & M. College, 1961, 1965.
- COOSA**
Rockford G. S. Sessions, B.S., M. Ag. Ed., 1955, 1965; Elmer Dowdell, B.S., Alcorn A. & M. College; M.S., Tuskegee Institute, 1957, 1965; Jerry Walls, B.S., 1963, 1965. Thelma E. Graves, B.S., M.S., Iowa State University, 1961, 1966; Mariah B. Brymer, B.S., M.Ed., Tuskegee Institute, 1963, 1965; Linda Wilson, B.S., Samford University, 1964, 1965.
- COVINGTON**
Andalusia W. H. Kinard, B.S., M.S., 1954, 1965; John W. Fryer, B.S., 1964, 1965; Robert E. Linder, B.S., M. Ag. Ed., 1960, 1965; C. W. Pike, B.S., M.Ag., 1952, 1965. Mary Ellen Haynes, B.S., Alabama College, 1951, 1965; Ann T. Martin, B.S., University of Alabama, 1966.
- CRENSHAW**
Luverne O. W. Reeder, B.S., 1941, 1965; G. B. Handley, B.S., 1948, 1965. Eunice Prater King, B.S., Alabama College, 1953, 1965; Jana H. Horne, B.S., Samford University, 1966.
- CULLMAN**
Cullman H. G. Pinkston, B.S., 1937, 1965; Harold Eugene Rose, B.S., 1961, 1965; M. T. Whisenant, B.S., 1949, 1965. Mary Sue Tillery, B.S., 1947, 1965; Peggy Maureen Murphy, B.S., Alabama College, 1964, 1965.
- DALE**
Ozark W. D. Thomason, B.S., 1931, 1965; James H. Estes, B.S., 1963, 1965; T. G. Hubbard, B.S., M.Ag., 1936, 1965. Ruth Sundberg, B.S., M.S., University of Tennessee, 1941, 1965; LeJean Ford, B.S., Texas State University for Women, 1963, 1965.

- DALLAS**
Selma
L. C. Alsobrook, B.S., 1942, 1965; Alex C. Brown, B.S., Tuskegee Institute; M.S., Indiana University, 1959, 1965; James S. Hines, B.S., 1966; Charles D. Scott, II, B.S., M.Ed., Tuskegee Institute, 1951, 1965; Wyeth H. Speir, Jr., B.S., M.Ag.Ed., 1961, 1965. Dorothy Hixson, B.S., Alabama College; M.S., University of Tennessee, 1937, 1965; Norma M. McCrory, B.S., University of Southern Mississippi, 1965; Lucy Upshaw, 1926, 1965.
- DeKALB**
Ft. Payne
F. DeWitt Robinson, B.S., 1949, 1965; C. A. Moore, B.S., 1955, 1965; D. C. Poe, B.S., 1956, 1965; *Bob Eugene Spears, B.S., Oklahoma State University, 1964, 1965. Mary Louise Walker, B.S., Peabody College, 1954, 1965; Patricia A. Drake, B.S., University of Alabama, 1966; *Janet T. Lakeman, B.S., Florence State College, 1963, 1965.
- ELMORE**
Wetumpka
J. E. Morris, B.S., M.S., 1935, 1965; *W. E. Davis, B.S., 1959, 1965; L. Shelton Hawsey, B.S., 1965; V. L. Keeble, B.S., 1942, 1965; Roscoe A. Lee, B.S., M.Ed., Tuskegee Institute, 1947, 1965. Betty Hamilton, B.S., University of Alabama, 1947, 1965; Judith N. Brown, B.S., 1966; Yvonne P. Madison, B.S., Tuskegee Institute, 1966; Hattie Wilson, B.S., Alabama College, 1947, 1965.
- ESCAMBIA**
Brewton
R. J. Martin, B.S., 1946, 1966; Edward M. Knowles, B.S., 1953, 1965; Ronald Lee Shumack, B.S., M.Ag.Ed., 1963, 1965. Peggy Bracken, B.S., 1963, 1965.
- ETOWAH**
Gadsden
T. L. Sanderson, B.S., M.S., 1943, 1965; H. J. Jackson, B.S., University of Georgia, 1944, 1965; A. D. Jones, B.S., M.Ag., 1948, 1965. Sara L. Thomas, B.S., 1947, 1965; Celeste H. Martin, B.S., 1957, 1965.
- FAYETTE**
Fayette
Albert Pitts, B.S., M.S., 1952, 1965; James Pettus Tucker, B.S., 1961, 1965. Annie Mary Hester, B.S., Berry College; M.S., University of Alabama, 1953, 1965; Jean McCracken, B.S., University of Alabama, 1957, 1965.
- FRANKLIN**
Russellville
H. A. Ponder, B.S., 1935, 1965; Ellis Raphord Farrington, B.S., 1964, 1965; H. W. Warren, B.S., 1945, 1965. Joyce McNutt, B.S., 1954, 1965; Eleanor R. Coker, B.S., Samford University, 1966.
- GENEVA**
Geneva
R. C. Reynolds, B.S., M.S., 1954, 1965; Dallas L. Hartzog, B.S., M.S., 1966; Ted B. Smith, B.S., 1963, 1965. Emily H. Seay, B.S., Alabama College, 1960, 1965; Linda L. Morris, B.S., 1966.
- GREENE**
Eutaw
W. H. Johnson, B.S., 1935, 1965; Frank L. Jackson, B.S., M.Ed., Tuskegee Institute, 1941, 1965; Ben D. McDonald, B.S., 1959, 1966. Rita Spencer, B.S., University of Alabama, 1964, 1965; Evelyn Blackmon, B.S., Alabama A. & M. College, 1965.
- HALE**
Greensboro
J. B. Deavours, B.S., 1937, 1965; *Gwinn Russell Ezzell, B.S., Alabama A. & M. College, 1964, 1965; J. N. Glass, B.S., 1948, 1965; B. E. Wood, B.S., 1966. Evelyn D. Edwards, B.S., Auburn; M.S., University of Alabama, 1966; Katie I. Carlton, B.S., Tuskegee Institute, 1950, 1965; Irene Jannette Lackey, B.S., 1965.
- HENRY**
Abbeville
R. C. Hartzog, B.S., 1946, 1965; C. L. Barefield, B.S., 1951, 1965; Carl Dennis, B.S., M.Ag., 1954, 1965; *Louis A. Murray, B.S., Alabama A. & M. College, 1962, 1965. Margaret O. Eason Kirkland, B.S., Jacksonville State University, 1961, 1965; Judith A. Bennett, B.S., University of Alabama, 1965, 1966.

* On leave for study.

- HOUSTON**
Dothan
Allen M. Mathews, B.S., M.Ag., 1957, 1965; Luther J. McCaughy, B.S., 1960, 1965; Marion H. Roney, B.S., 1962, 1965; Reafield Vester, B.S., Alabama A. & M. College, 1966; J. N. White, B.S., 1936, 1965.
Julia Smith, B.S., 1955, 1965; Judy A. Holley, B.S., 1963, 1966; Susan J. Reifers, B.S., 1966; Mildred Mae Ward, B.S., M.Ed., Tuskegee Institute, 1955, 1965.
- JACKSON**
Scottsboro
J. E. Carter, B.S., 1928, 1965; Lesel A. Dozier, B.S., 1964, 1965; Louis Edward White, B.S., M.Ed.Admin., University of Alabama, 1962, 1965.
Mrs. Clyde Peck, B.S., 1942, 1965; Mrs. Ivous T. Sisk, B.S., Florence State College, 1959, 1965.
- JEFFERSON**
Birmingham
C. H. Johns, B.S., 1937, 1965; R. A. Griffin, B.S., M.S., 1960, 1965; William Gaines Smith, B.S., 1965; Percy L. White, B.S., Alabama A. & M. College, 1949, 1965.
Irby Barrett, B.S., 1933, 1965; Rubye J. Robinson, B.S., Philander Smith College, 1945, 1965; Maryann F. Wilson, B.S., Samford University, 1966; Barbara Williams, B.S., Florence State College, 1961, 1966.
- LAMAR**
Vernon
H. H. Lumpkin, B.S., 1950, 1965; C. T. Guthrie, B.S., 1966.
Barbara Alawine, B.S., University of Alabama, 1953, 1965; Jo Ann Huffman, B.S., University of Alabama, 1966.
- LAUDERDALE**
Florence
L. T. Wagnon, B.S., 1935, 1965; Charles W. Burns, B.S., 1957, 1965; Howard Douglas Hall, B.S., 1962, 1965; Irby J. Harrell, B.S., Berry College, 1963, 1965; Robert T. Hughes, B.S., Alabama A. & M. College; M.S., Tuskegee Institute, 1958, 1965.
Sara R. Conner, B.S., Alabama College, 1949, 1965; Margaret Mytilde Creel, B.S., Alabama College, 1964, 1965; Sadie L. McClellan, B.S., Tuskegee Institute, 1944, 1965.
- LAWRENCE**
Moulton
S. P. McClendon, B.S., 1943, 1965; Sidney H. Bates, B.S., Tuskegee Institute, 1957, 1965; Dean Parris, B.S., 1959, 1965.
Ruby Rogers, B.S., Athens College, 1953, 1965; Linda Finney, B.S., Mississippi State College for Women, 1965, 1966; Inez M. Petty, B.S., Alabama A. & M. College; M.Ed., Tuskegee Institute, 1949, 1965.
- LEE**
Opelika
R. W. Teague, B.S., 1948, 1965; Wm. J. Alverson, B.S., 1965; Thomas Cooksey, B.S., 1964, 1966; Paul Henry Waddy, B.S., Alabama A. & M. College, 1964, 1965.
Elizabeth Crum, B.S., 1955, 1965; Willie C. Lockhart, B.S., Tuskegee Institute, 1937, 1965; Myrna J. Rhoades, B.S., University of Alabama, 1965.
- LIMESTONE**
Athens
F. K. Agee, B.S., 1945, 1965; Robert Burton, B.S., Alabama A. & M. College, 1962, 1965; C. R. Morrow, B.S., 1946, 1965; Patrick A. Waldrop, B.S., 1962, 1965.
Emma Jo Lindsey, B.S., 1948, 1965; Athelstine H. Malone, B.S., Alabama A. & M. College, 1956, 1965; Charlotte Marshall, B.S., Jacksonville State University, 1965, 1966.
- LOWNDES**
Hayneville
J. W. Mathews, B.S., 1933, 1965; Scott Billingsley, B.S., M.S., Tuskegee Institute, 1951, 1965; T. J. Gerald, B.S., 1946, 1965.
Mary Maddux, B.S., 1957, 1965; Olean P. Cunningham, B.S., Tuskegee Institute, 1950, 1965.
- MACON**
Tuskegee
J. M. Bolling, B.S., 1939, 1965; Leonard Huffman, B.S., M.Ed., Tuskegee Institute, 1962, 1965; William D. Osborn, B.S., 1966; James L. Smith, B.S., Edward Waters College; M.S., Tuskegee Institute, 1965.
Mary Ann Motley, B.S., University of Alabama, 1964, 1965; Carolyn Brown Williams, B.S., Tuskegee Institute, 1962, 1965.

- MADISON**
Huntsville R. O. Magnusson, B.S., 1948, 1965; William Harold Bailey, B.S., 1963, 1965; Earl C. Halla, B.S., M.S., 1953, 1965; H. L. Hood, 1936, 1965; Warren Q. Scott, B.S., Tuskegee Institute, 1942, 1965; Christine Huber, B.S., Peabody College, 1944, 1965; Frances M. Hutchison, B.S., Alabama A. & M. College, 1958, 1965; Barbara Owens, B.S., Florence State College, 1958, 1965.
- MARENGO**
Linden F. M. Jones, B.S., 1935, 1965; Charles S. Foreman, B.S., M.Ed., Tuskegee Institute, 1945, 1965; Cecil Miller, B.S., 1954, 1965; Rudy P. Yates, B.S., 1960.
Marjorie Weaver, B.S., 1943, 1965; Rosalyn Ketchum Palmer, B.S., 1960, 1965; Vera J. Wilson, B.S., Alabama A. & M. College, 1966.
- MARION**
Hamilton H. B. Price, B.S., 1945, 1965; O. Terrill Gonce, B.S., 1965; I. D. Thornton, B.S., M.S., 1944, 1965.
Elna Tanner, B.S., M.S., 1950, 1965; Penelope L. Flippo, B.S., University of Alabama, 1962, 1965.
- MARSHALL**
Guntersville W. L. Martin, B.S., 1942, 1965; R. I. D. Murphy, B.S., M.S., 1958, 1965; Franklin H. Wood, B.S., 1963, 1965.
Elaine C. Brooks, B.S., Samford University, 1962, 1966.
- MOBILE**
Mobile Charles B. Vickery, B.S., 1948, 1965; W. R. Agerton, B.S., M.S., 1965; W. L. Deakle, 1943, 1965; Charles H. Kilpatrick, B.S., 1964, 1965.
Mona Whatley, B.S., Peabody College, 1941, 1965; Mildred Payne, B.S., 1941, 1965; Linda F. Tidmore, B.S., 1966.
- MONROE**
Monroeville A. V. Culpepper, B.S., 1928, 1965; Mike M. Gamble, B.S., Mississippi State University, 1966; Walter C. Odom, B.S., Tuskegee Institute; M.S., University of Wisconsin, 1938, 1965; James H. Sellers, B.S., 1966.
Annie Richardson, A.B., Judson College, 1952, 1965; DeLois Carmichael, B.S., M.Ed., Tuskegee Institute, 1952, 1965; Jo Ann Middlebrooks, B.S., University of Alabama, 1964, 1965.
- MONTGOMERY**
Montgomery T. P. McCabe, B.S., M.Ag., 1939, 1965; Leonard E. Brown, B.S., Alcorn A. & M. College; M.S., Tuskegee Institute, 1964, 1965; Addre Bryant, B.S., Tuskegee Institute, 1954, 1965; Don W. Freeman, B.S., 1965; Jack A. Thompson, B.S., M.S., University of Tennessee, 1957, 1965.
Virginia Gilchrist, B.S., University of Alabama, 1955, 1965; Annie M. Boynton, 1928, 1965; Carolyn June Saxon, B.S., University of Alabama, 1964, 1965.
- MORGAN**
Hartselle C. D. Rutledge, B.S., M.Ag., 1948, 1965; Eddie E. Cannon, B.S., Alabama A. & M. College; M.S., Tuskegee Institute, 1965; H. W. Houston, B.S., M.S., 1954, 1965; Jerry L. Parker, B.S., M.Ag.Ed., 1960, 1965.
Lucile Hawkins, B.S., Alabama College, 1948, 1965; Mary O. Coffey, A.B., Judson College, 1961, 1965; Elouise Lipscomb, 1944, 1965.
- PERRY**
Marion W. O. Hairston, B.S., M.Ag., 1946, 1965; J. A. Bates, B.S., 1950, 1965; Richard E. Smith, B.S., Alabama A. & M. College, 1962, 1965.
Evelyn Graham, B.S., University of Alabama, 1950, 1965; Ollie Mae Raybon, B.S., M.Ed., Tuskegee Institute, 1952, 1965; Joyce Richardson, B.S., Judson College, 1958, 1965.
- PICKENS**
Carrollton Edward N. Graham, B.S., M.S., Mississippi State University, 1960, 1966; Thomas J. Dill, B.S., M.S., Southern Methodist University, 1962, 1965; Walter D. Powers, B.S., 1966.
Helen B. Hill, B.S., Alabama College; M.S., 1941, 1965; Lorraine Meeks, B.S., University of Alabama, 1957, 1965.
- PIKE**
Troy H. J. Carter, B.S., 1935, 1965; Darell P. Dunn, B.S., 1965; Howard Allen Taylor, B.S., M.S., 1962, 1965.
Florence Owens, B.S., Florida State University, 1958, 1965; Sandra T. Lord, B.S., Alabama College, 1966.

- RANDOLPH**
Wedowee Grady M. Wakefield, B.S., M.S., 1957, 1965; T. J. Burnside, Jr., B.S., M.S., 1960, 1965; Theodore Shumpert, B.S., M.Ed., Tuskegee Institute, 1946, 1965.
Wanda E. Prater, B.S., Jacksonville State University, 1965; Georgia S. Nelson, B.S., Tuskegee Institute, 1963, 1965; Barbara K. White, B.S., University of Mississippi, 1966.
- RUSSELL**
Phenix City C. A. Woods, B.S., 1947, 1965; Mack H. Eldridge, Virginia State College, 1948, 1965; J. A. McLean, B.S., M.S., 1954, 1965.
Alma Holladay, B.S., M.S., 1941, 1965; Elnora Candy, B.S., Tuskegee Institute, 1952, 1965.
- SHELBY**
Columbiana W. M. Clark, B.S., 1937, 1965; J. E. Jones, B.S., 1958, 1965; W. J. Thompson, B.S., M.S., 1954, 1965.
Marian Cotney, B.S., 1939, 1965; Joyce E. Dement, B.S., David Lipscomb College; M.S., University of Tennessee, 1964, 1965.
H. L. Eubanks, B.S., 1934, 1965; W. D. Jackson, B.S., 1946, 1965; J. E. Yates, B.S., 1955, 1965.
Aileen Puckett, B.S., University of Alabama, 1957, 1965; Shirley Mae Cargus, B.S., Jacksonville State University, 1965.
- ST. CLAIR**
Pell City B. B. Williamson, B.S., M.Ag., 1946, 1966; F. W. Kilgore, B.S., 1954, 1965; Joe E. Lashley, B.S., 1965; Henry J. Spears, B.S., Alabama A. & M. College M.Ed., Tuskegee Institute, 1946, 1965.
Mildred Ennis, B.S., University of Tennessee, 1958, 1965; Elizabeth Ann Mathis, B.S., Samford University, 1965; Theresa E. Threadgill, B.S., Tuskegee Institute, 1957, 1965.
- TALLADEGA**
Talladega Thomas L. Bass, B.S., M.S., 1946, 1966; A. A. Hester, B.S., 1944, 1965; J. B. Mathews, B.S., 1949, 1965; Curtis H. O'Daniel, B.S., 1965, 1966; George A. Peasant, B.S., Tuskegee Institute; M.S., Virginia State College, 1950, 1965.
Mary Baughn, B.S., Alabama College, 1951, 1965; Lena S. Culpepper, B.S., 1961, 1965; Martha J. Owens, B.S., 1966; Marie H. Player, B.S., Alabama A. & M. College; M.Ed., Tuskegee Institute, 1957, 1965.
- TALLAPOOSA**
Dadeville C. H. Webb, B.S., 1957, 1965; Sam D. Carroll, B.S., 1963, 1965; James E. Pinion, B.S., 1966; William L. Royston, 1944, 1965; R. W. Thompson, B.S., M.S., 1958, 1965.
Margaret Miller, B.S., 1949, 1965; Iris E. Anderson, B.S., Alabama College, 1965; Annette B. Wallace, B.S., Alabama A. & M. College, 1966.
- TUSCALOOSA**
Tuscaloosa B. R. Holstun, B.S., 1934, 1965; James Cooper, B.S., 1948, 1965; B. B. Fields, B.S., Tuskegee Institute; M.S., University of Illinois, 1954, 1965; James C. Howell, B.S., M.Ag.Ed., 1961, 1965; French Sconyers, B.S., 1943, 1965.
Elizabeth Stewart, B.S., 1945, 1965; LaVurn Blount, B.S., Alabama A. & M. College, 1965; Mrs. O'Neal Massey, B.S.; M.S., University of Alabama; 1952, 1965; Sarah N. Watson, B.S., University of Alabama, 1961, 1965.
- WALKER**
Jasper Robert E. Thornton, B.S., M.S., 1954, 1965; Jerry B. Clark, B.S., 1965; W. D. Jones, B.S., 1954, 1965.
Jeanette Argo, B.S., Alabama College; M.S., University of Alabama, 1949, 1965; Margaret P. Gray, B.S., Alabama College, 1966; Gail Jeanette Morris, B.S., University of Alabama, 1965.
- WASHINGTON**
Chatom D. O. Estes, B.S., 1949, 1965; George Clayton Hoomes, B.S., 1963, 1965.
Sarah H. Hazen, B.S., 1964, 1965.
- WILCOX**
Camden Robert C. Farquhar, B.S., Auburn University; M.S., University of Alabama, 1949, 1965; W. J. Hardy, B.S., 1954, 1965; William E. Street, 1927, 1965.
Margaret Whatley, B.S.; M.S., University of Alabama, 1941, 1965; Sandra Sharnan, B.S., University of Alabama, 1965; Solonia E. Reynolds, B.S., Alabama A. & M. College; M.Ed., Tuskegee Institute, 1949, 1965.
- WINSTON**
Double Springs W. L. Richardson, B.S., 1935, 1965; J. E. Fields, B.S., 1949, 1965.
Madge Pennington, B.S., 1941, 1965.

ENGINEERING EXPERIMENT STATION STAFF

HARRY M. PHILPOTT, A.B., Ph.D., D.D., LL.D., *President*
 FRED H. PUMPHREY, B.A., B.E.E., E.E., D.Sc., (P.E.), *Director*
 J. GRADY COX, B.S.Ch.E., M.S., Ph.D., (P.E.), *Assistant Director*

Aerospace Engineering

PITTS, ROBERT G. *Head of Department, (P.E.), 1935, 1944*
 B.A.E., Auburn University; M.S., California Institute of Technology.
 CUTCHENS, MALCOLM A. *Associate Professor, (P.E.), 1956, 1962*
 B.S.C.E., M.S.E.M., Virginia Polytechnic Institute.

Chemical Engineering

WINGARD, ROBERT E. *Head of Department, 1932, 1963*
 B.S., M.S., Auburn University.
 HSU, CHENG-TEH *Professor, 1953, 1962*
 B.S.C., University of Nanking; M.S., University of Wisconsin; Ph.D., University of Pennsylvania.
 TAYLOR, ZELMA LOWELL, JR. *Assistant Research Professor, 1962, 1966*
 B.S.Ch.E., University of Idaho; M.S., Auburn University; Ph.D., University of Florida

Civil Engineering

SAWYER, DONALD A. *Head of Department, (P.E.), 1965*
 B.C.E., M.S.E., Ph.D., University of Florida.
 HUDSON, FRED *Professor, (P.E.), 1947, 1961*
 B.S.C.E., Purdue University; M.S., Princeton University.
 POPOVICS, SANDOR *Professor, 1959*
 Diploma, Polytechnic University, Budapest, Candidate of Tech. Science, National Academy of Sciences, Budapest; Ph.D., Purdue University.

Electrical Engineering

HOLMES, CHARLES H. *Head of Department, 1957, 1966*
 B.E.E., Auburn University; M.E.E., Brooklyn Polytechnic Institute; Ph.D., Stanford University.
 VENTRICE, CARL *Associate Professor, 1956, 1962*
 B.S.E.E., M.S., Ph.D., Pennsylvania State.

Industrial Engineering

BROOKS, GEORGE H. *Head of Department, 1950, 1964*
 B.I.E., University of Florida; M.S.I.E., Ph.D., Georgia Institute of Technology.
 MIZE, JOE H. *Associate Professor, 1964, 1965*
 B.S.I.E., Texas Technological College; M.S.I.E., Ph.D., Purdue University.
 HERRING, BRUCE E. *Assistant Professor, 1965*
 B.I.E., Ohio State University; M.S.M.E., New Mexico State University.

Mechanical Engineering

VESTAL, D. M., JR. *Head of Department, (P.E.), 1959*
 B.S.M.E., B.S.E.E., M.S.M.E., Texas A. & M. University; Ph.D., Stanford University.
 BUSSELL, WILLIAM H. *Professor, 1965*
 B.M.E., M.S.E., University of Florida; Ph.D., Michigan State University.
 DUNN, JERRY R. *Assistant Professor, 1962, 1966*
 B.S.M.E., Lamar Tech; M.S.M.E., Ph.D., Georgia Institute of Technology.
 CHENG, SHIU-CHIH *Instructor, 1960*
 B.S., Taiwan Cheng Kung University.
 NIX, GORDON H. *Instructor, 1962*
 B.S., Auburn University.

Textile Engineering

- ADAMS, CLEVELAND L. *Head of Department, 1952*
B.T.E., Auburn University.
- FARROW, JAMES C. *Associate Professor, (P.E.), 1965*
B.S.T.E., Auburn University.
- HALL, DAVID M. *Associate Professor, 1965*
B.S.T.E., Auburn University; M.S.T.C., Clemson University; Ph.D., Victoria University (England).

ENGINEERING EXTENSION SERVICE

- FRED H. PUMPHREY *Dean, School of Engineering, (P.E.), 1958*
B.A., B.E.E., E.E., D.Sc. (Hon.), Ohio State University.
- JOHN L. CAIN *Director, 1962*
B.Ch.E., Georgia Institute of Technology.
- FRANK VANDEGRIFT *Assistant Director, Director Coop. Education, (P.E.), 1964*
B.M.E., Georgia Institute of Technology; M.A., Columbia Theological Seminary.
- JACK C. WESTBERRY *Assistant Director Coop. Education, 1963*
B.S.T., M.S., Georgia Institute of Technology.

STATE REGULATORY AND VETERINARY SERVICES

STATE REGULATORY SERVICE

CHEMISTRY

SAUNDERS, CHARLES RICHARD	State Chemist, 1924, 1950
B.S., M.S., Auburn University; Ph.D., University of Nebraska.	
BIDEZ, ALICE BEASLEY	Secretary, 1934
HARRIS, ROBERT RUSHIN	Agricultural Chemist I, 1961
A.B., University of Alabama.	
RHODES, REGINA A.	Agricultural Chemist I, 1961
B.S., Auburn University.	
RICHBURG, REX WESLEY	Principal Chemist III, 1950, 1961
B.S., Auburn University; B.S., Troy State College.	
WILLIAMS, NANCY K.	Chemist I, 1965
B.S., Auburn University.	

STATE VETERINARY DIAGNOSTIC LABORATORY

(Conducted in cooperation with the Alabama State Department of Agriculture and Industries and the United States Department of Agriculture, Agricultural Research Service.)

GREENE, JAMES E.	Dean, School of Veterinary Medicine, 1937, 1958
D.V.M., M.S., Auburn University.	
MILLIGAN, JOHN G.	State Veterinarian, 1951
B.S., D.V.M., Auburn University.	
TAYLOR, JULIAN B.	Associate State Veterinarian, 1945
D.V.M., Auburn University.	
ROBERTS, CHARLES S.	In Charge of State Diagnostic Laboratory, 1947, 1958
D.V.M., Auburn University; M.S., Michigan State University.	
HUNTER, KATHRYN	Laboratory Assistant II, State Diagnostic Laboratory, 1959
WHITE, GERALDINE	Secretary, State Diagnostic Laboratory, 1958, 1965
WORTHY, MARY	Laboratory Assistant II, State Diagnostic Laboratory, 1959
EMRICK, V. R.	U.S. Dept. of Agriculture, Agricultural Research Service, In Charge of Bang's Disease Laboratory, 1949
DAVIDSON, SANDRA	Secretary, State Federal Bang's Disease Laboratory, 1964
JACKSON, DOROTHY B.	Laboratory Assistant II, State Federal Bang's Disease Laboratory, 1964
WILLIAMSON, O. B.	U.S. Dept. of Agriculture, Agricultural Research Service, Biological Laboratory Aide, 1955
WILLIAMSON, RUTH	U.S. Dept. of Agriculture, Agricultural Research Service, Biological Laboratory Aide, 1957
LITTLE, FLETCHER C.	U.S. Dept. of Agriculture, Agricultural Research Service, Biological Laboratory Aide, 1964
LONG, IRL RICHARD, JR.	Bacteriologist, 1966
A.B., Huntingdon College.	
POOLE, JAMES H.	In Charge of State Branch Veterinary Diagnostic Laboratory, Albertville, Alabama, 1964
D.V.M., Auburn University.	
EDWARDS, SPENCER C.	Bacteriologist, State Branch Veterinary Diagnostic Laboratory, Albertville, Alabama, 1964
B.S., Huntingdon College.	
MCCREARY, V. D.	In Charge of State Branch Veterinary Diagnostic Laboratory, Elba, Alabama, 1960
D.V.M., Auburn University.	
MOODY, HAROLD M.	Bacteriologist, State Branch Veterinary Diagnostic Laboratory, Elba, Alabama, 1955, 1962
B.S., Troy State College.	

Enrollment Statistics

Enrollment Statistics

1966-1967

Table 1—Enrollment by Classes, Courses and Divisions

FALL QUARTER, 1966

DIVISION AND COURSE	Freshmen		Sophomores		Juniors		Seniors		5th Year		Special and Unclassified		Total	
	M	W	M	W	M	W	M	W	M	W	M	W	M	W
School of Agriculture														
Agricultural Administration.....	24		30	1	21		9				3		87	1
Agricultural Engineering.....	20		14		6		8				1		49	9
Agricultural Science.....	41	3	32	1	26	3	23				9	2	131	9
Biological Sciences.....	66	10	62	7	30	8	26	3			6		190	28
Forest Management.....	50		29		10		10				2		101	
Ornamental Horticulture.....	7		5	2	4	1	1						17	3
Wood Technology.....	3		4		2		1						10	
TOTAL.....	211	13	176	11	99	12	78	3	Graduate School	3	21	2	585	41
									TOTAL (Agriculture)				225	20
													810	61
School of Architecture														
Architecture.....	112	7	65	3	36	1	28	1	17	1			258	12
Building Construction.....	67		50		29		27						179	
Drama.....	3	12	2	1	2	3	2	1			2	1	8	17
Fine Arts.....	39	1	38	1	8	13	13	5					98	19
Industrial Design.....	9	26	4	18	3	14	4	2					20	63
Interior Design.....	7	5	1	2	3	3	2	2					11	14
Music.....	25	38	32	21	13	16	12	11			1		83	86
Visual Design.....	264	97	199	53	95	40	86	19	17	1	3	3	684	213
TOTAL.....									Graduate School				667	213
									TOTAL (Architecture)					
School of Chemistry														
Chemistry.....	29	12	21	7	10	3	9				1	1	70	23
Chemical Engineering.....	49		53		32		27				1		162	1
Laboratory Technology.....	3	28	4	16	1	16	7						8	67
TOTAL.....	81	40	78	24	43	19	36	7			2	1	240	91
									Graduate School				43	2
									TOTAL (Chemistry)				283	93
School of Education														
Elementary Education.....	219		4	212	3	220	2	142			3	72	11	865
Health, Physical Education & Recreation.....	50	24	36	42	14	36	17	24			2	3	167	79
Psychology.....	11	20	22	13	17	16	15	12					67	64
Secondary Education.....	54	246	53	246	85	261	68	181			44	68	284	1004
Vocational, Technical & Practical Arts.....	20		30	1	43		30				5	1	128	2
TOTAL.....	135	509	145	498	169	511	151	352	Graduate School		57	144	657	2014
									TOTAL (Education)				215	191
													872	2305

Table II—Enrollment of Alabama Students by Counties

FALL QUARTER, 1966

County	Men	Women	Total
Autauga.....	35	18	53
Baldwin.....	107	46	153
Barbour.....	36	41	77
Bibb.....	20	4	24
Blount.....	41	15	56
Bullock.....	19	14	33
Butler.....	41	27	68
Calhoun.....	140	42	182
Chambers.....	161	101	262
Cherokee.....	15	2	17
Chilton.....	35	9	44
Choctaw.....	14	22	36
Clarke.....	35	13	48
Clay.....	49	22	71
Cleburne.....	16	6	22
Coffee.....	77	26	103
Colbert.....	68	29	97
Conecuh.....	23	8	31
Coosa.....	24	12	36
Covington.....	93	37	130
Crenshaw.....	137	13	50
Cullman.....	50	15	65
Dale.....	81	18	99
Dallas.....	98	38	136
DeKalb.....	62	27	89
Elmore.....	97	47	144
Escambia.....	62	33	95
Etowah.....	122	75	197
Fayette.....	19	1	20
Franklin.....	17	19	36
Geneva.....	37	10	47
Greene.....	6	4	10
Hale.....	17	9	26
Henry.....	44	17	61
Houston.....	112	51	163
Jackson.....	45	19	64
Jefferson.....	1076	575	1651
Lamar.....	7	4	11
Lauderdale.....	58	18	76
Lawrence.....	18	7	25
Lee.....	981	382	1363
Limestone.....	31	12	43
Lowndes.....	27	14	41
Macon.....	29	17	46
Madison.....	264	93	357
Marengo.....	30	11	41
Marion.....	18	3	21
Marshall.....	93	52	145
Mobile.....	319	166	485
Monroe.....	37	14	51
Montgomery.....	499	277	776
Morgan.....	88	41	129
Perry.....	18	10	28
Pickens.....	25	5	30
Pike.....	49	17	66
Randolph.....	55	44	99
Russell.....	107	36	143
St. Clair.....	34	15	49
Shelby.....	45	14	59
Sumter.....	16	7	23
Talladega.....	120	64	184
Tallapoosa.....	144	70	214
Tuscaloosa.....	31	11	42
Walker.....	26	16	42
Washington.....	12	4	16
Wilcox.....	21	10	31
Winston.....	14	7	21
TOTAL (ALABAMA).....	6247	2906	9153

Table III—Enrollment of Students by States and Territories

FALL QUARTER, 1966

State	Men	Women	Totals
Arkansas.....	13	2	15
California.....	21	7	28
Connecticut.....	5	0	5
Delaware.....	2	0	2
District of Columbia.....	5	3	8
Florida.....	544	132	676
Georgia.....	911	362	1273
Muscogee, Ga.....	160	83	243
Hawaii.....	3	1	4
Idaho.....	2	0	2
Illinois.....	6	3	9
Indiana.....	13	3	16
Iowa.....	2	0	2
Kansas.....	3	0	3
Kentucky.....	76	12	88
Louisiana.....	62	12	74
Maine.....	2	0	2
Maryland.....	21	4	25
Massachusetts.....	4	1	5
Michigan.....	8	4	12
Minnesota.....	5	0	5
Mississippi.....	119	18	137
Missouri.....	7	2	9
Montana.....	1	0	1
New Jersey.....	20	5	25
New Mexico.....	1	1	2
New York.....	40	10	50
North Carolina.....	35	7	42
North Dakota.....	1	1	2
Ohio.....	13	0	13
Oklahoma.....	6	2	8
Oregon.....	3	1	4
Pennsylvania.....	26	4	30
Rhode Island.....	2	0	2
South Carolina.....	45	15	60
South Dakota.....	1	1	2
Tennessee.....	282	68	350
Texas.....	28	13	41
Utah.....	3	0	3
Vermont.....	1	0	1
Virginia.....	49	22	71
Washington.....	4	0	4
West Virginia.....	5	0	5
Wisconsin.....	3	0	3
Wyoming.....	1	0	1
TOTAL—Other States.....	2564	799	3363
TOTALS—All States.....	8811	3705	12516
United States Territories			
Canal Zone.....	2	0	2
Puerto Rico.....	1	2	3
TOTALS—U.S. Territories.....	3	2	5

Table IV—Enrollment of Students by Foreign Country

FALL QUARTER, 1966

Foreign Country	Men	Women	Total
Canada.....	2	1	3
China.....	25	9	34
Colombia.....	1	0	1
Costa Rico.....	2	0	2
Cuba.....	2	0	2
England.....	1	0	1
Greece.....	5	0	5
India.....	33	0	33
Iran.....	6	0	6
Jordan.....	3	0	3
Korea.....	5	1	6
Mexico.....	2	0	2
Nicaragua.....	1	0	1
Pakistan.....	4	1	5
Turkey.....	1	0	1
Venezuela.....	1	0	1
Indonesia.....	4	0	4
Syria.....	1	0	1
Republic of Viet Nam.....	0	1	1
Ecuador.....	1	0	1
Sarawak.....	1	0	1
Hong Kong.....	5	2	7
Arabia.....	1	0	1
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TOTAL STUDENTS ENROLLED			
Fall Quarter 1966.....	8921	3722	12643

General Summary of Enrollment

SUMMER, FALL, AND WINTER, 1966-1967 (as of March 1, 1967)

Correspondence Study Courses.....	753
Clinics, Conferences, Seminars and Short Courses.....	7,343
GRAND TOTAL.....	8,096*

* This figure does not include the 12,643 students regularly enrolled in full-time classes. The combined total, however, is 21,739.

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